IRON TRADE REVIEW
Registered U. S. Patent Office
The Authority of Industry — National and International
Vol. LXXIV — Cleveland, June 5, 1924 — No. 23

Steel Market Lacks Stimulus

Revival of Interest Shown in Some Lines but Sluggishness Is General—Activity of Pig Iron Market Is More Pronounced—May Decline in Pig Iron Production Has Few Parallels in History

GENERAL sluggishness still dominates the iron and steel situation but this is being modified by a few signs of stimulated interest as the decline of prices and production becomes more sharply extended. This week a noticeable betterment has been apparent in inquiries and new undertakings in structural steel. Tube mills are able to maintain operations 20 per cent above other finished lines. The reawakening of the pig iron market has become more pronounced. Elsewhere the market is not improved.

With recovery held back, the gap between mill shipments and new business is keeping up indicating that either buyers have little to place at present or are unwilling to commit themselves. Average deliveries of the Steel corporation have been running 36,000 to 37,000 tons daily and new bookings about 25,000 tons. Finishing activities of the leading producer continue considerably ahead of steel production. For the industry at large, operations are around 60 per cent.

Sufficient time has not elapsed to test the market influence of the firmer policy on finished steel prices now being pursued by leading producers including the Steel corporation. Plates, shapes and bars now have settled to an open price of 2.20c, Pittsburgh with the usual concessions for preferred business. At Chicago, the market is $1 to $2 per ton easier. Eastern plate prices are around 2.00c, Pittsburgh.

Iron Loss Is Severe

Cumulative effects of the recent severe cutting down of blast furnace activities are set forth by the pig iron production figures for May coming at a somewhat later date than the shrinkage in steel which is in logical order. May added a further net loss of 46 active furnaces, making the total decrease in the past two months 81 stacks. This is the heaviest fall in furnace operations in a similar period since the 1921 depression. Furnaces in blast at the end of May were 188 compared with 269 on the corresponding date in March. Average daily production of pig iron in May fell 21 per cent from April to 84,879 tons, which is the lowest figure in 18 months. The average daily decline in May, 22,658 tons was without a previous parallel on record, slightly exceeding that at the time of the steel strike in 1919. Total production in May was 2,631,248 tons, a loss of 594,859 tons from April representing 18.4 per cent.

Wage Scale Unchanged

Slow business conditions undoubtedly have been a factor influencing the organized sheet and tin plate workers to yield their demands for wage increases averaging 25 per cent in the new yearly agreement dating from July 1. Conservative counsels dominated the conference of representatives of the men and the manufacturers this week at which a new agreement was negotiated on the same basis as the expiring year's scale. Bar iron workers who also have been asking large advances, will confer with the employers in a few days.

Practically all the coal and coke producers excepting Frick and Rainey interests in the Fayette county field, embracing the main Connellsville district, continue to bring down their wage rates to the 1917 basis.

IRON TRADE REVIEW composite of 14 leading iron and steel products registers the general market back at the level of January 1923 when the general advance of that year was inaugurated. This week's composite is $40.84. Last week it was $41.14.

In structural steel, awards this week were increased to 22,544 tons. Inquiries are heavier totaling about 31,000 tons. The first portion, 4500 tons, of a 30,000-ton subway extension at New York is up for figures. Tank work is reappearing. The Hunble Oil Co. placed 2000 tons and the Standard Oil of Louisiana is about to close on 3500 tons.

East Russia has placed 75,000 boxes of tin plate and Cuba 5000 tons of rails with Steel corporation mills.

Buying Is On Rise

Revival of interest in pig iron has broadened to an extent that proclaims a buying movement of substantial proportions. Cleveland sellers report 100,000 tons in inquiry drawn from a wide territory. At Philadelphia and eastern territory 40,000 tons was closed in the week including a lot by a leading pipe maker. The American Radiator Co. which already is credited by reports with having negotiated large purchases at $19 Buffalo is inquiring for 25,000 tons principally for eastern plants. Prices have again weakened under the first rush of attractive business. Chicago is down to $22, Southern Ohio to $21, valley to $20 and Buffalo to $19.50 and $20.

Business Trend and Chart Section Page 1489

The Reader's Page

Contents, June 5, 1924

MARKET SECTION

General Market Review....1465
Domestic Market Report....1467-1479
Price Tables....1468, 1469, 1522, 1526, 1528
Foreign Market Reports....1481
View St. Louis as Steel Center....1482-1485
Editorials....1486, 1487
Business Trend Charts....1489-1492

ENGINEERING SECTION

Melting 9 Tons in 3-Ton Furnace—By Larry J. Barton....1493
Large Uses of Steel in Small Ways—Tacks....1496
Selling Practices Are Analyzed—By Ernest T. Weir....1497
Standardizing Tool Data Sheets—By A. L. Evans....1499
Extend Scope of Automatic Tools....1505

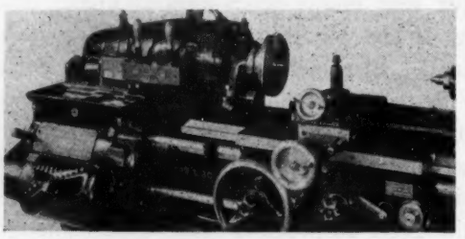
GENERAL NEWS SECTION

Engineers' Program Is Diversified....1514-1516
Steel Imports and Exports Gain....1517
Men of Industry....1518
Machinery Market Report....1519
Crane Awards and Inquiries....1520
Business Changes....1521
Construction and Enterprise..1521, 1522, 1524, 1525

Statistics Stimulate Thought

SUGGESTIONS frequently are received from readers indicating the importance of statistics.

The article in the May 22 issue comparing index figures for employment and production prompts a well-known manufacturer to say the business world needs more figures pertaining to per capita output. He points out that we do not know specifically and often enough how intensively our industries are engaged, measured by output per man employed. He believes such information widely disseminated would be helpful, and would stimulate the feeling of mutual interest and teamwork. The value of statistics has not been overlooked by Iron Trade Review, as evidenced by its many charts, tables and analyses respecting business generally, and metalworking industries in particular.



Improvements and new developments in machine tools described on page 1505

Do You Know That—

Among subscribers to IRON TRADE REVIEW there are 1089 identified with plating and polishing departments. In stamping and drawing departments are 1296 subscribers.

Action in Pig Iron Market More Pronounced—Many Large Users Buying—Lower Prices Developed

PITTSBURGH, June 3.—While pig iron bargains occasionally may become available from brokers or scrap interests on resale, quotations generally appear checked on their downward trend and a distinct tendency toward stiffening is apparent. One valley basic producer, maintaining $20.50 against brokers' quotations of $20 and lower, is about to advance to $21. Numerous consumers are quietly sounding out the market, believing an upward turn is just ahead. Valley basic iron is offered here below $20. Producers are quoting $20 to $20.50. The Ohio Steel Foundry Co., Lima, O., is understood to have closed for 500 tons with a Cleveland or Toledo furnace. The N. & G. Taylor Co., Cumberland, Md., is buying in the East 500 tons monthly for a period. A Johnstown steelworks is quoting $20, furnace. Inquiry for bessemer iron is lacking, except one from the Wheeling Mould & Foundry Co. on which $22, valley or Johnstown, has been quoted. The Westinghouse Electric & Mfg. Co. is inquiring for 3050 tons of assorted foundry grades for its Cleveland plant. The Pittsburgh Valve, Foundry & Construction Co. has received prices below $20 valley on its inquiry for 300 tons of No. 2 iron and 200 tons of a higher silicon grade. Some producers still are quoting $20.50 and $21 base. They will close tomorrow on small lots. Low phosphorus is bringing $29, valley. The average sales prices on basic and bessemer pig iron in the valley as compiled by W. P. Snyder & Co. for May, were $20.32 and $22.125, respectively. These compare with $21.50 and $22.80, respectively, for April. The May basic average is $1.18 lower than the April, the bessemer decline being 77½ cents.

Buying Expected Soon

Boston, June 3.—Inquiry and the general attitude of consumers point to a fair volume of buying within the next week or 10 days. New England buyers are waiting with keen interest the action of the H. B. Smith Co., one of the largest buyers in the district. This concern is expected to place a heavy tonnage as soon as convinced that the low point has been reached. Other inquiries include 1000 tons for a textile machine manufacturer, 200 tons for a general jobbing foundry and several 100-ton lots. Sales of the past week include about 300 tons of No. 2X iron (2.25 to 2.75 silicon), taken by an eastern Pennsylvania furnace at $21.50, furnace, or $25.15, delivered; 100 tons to a Maine consumer; 150 tons of special iron to a Massachusetts consumer; 200 tons of No. 2X Buffalo iron, taken at $20, furnace, or $24.91, delivered. Rumors are current that an attractive tonnage of No. 1X (2.75 to 3.25 silicon) could be placed at Buffalo at $20, furnace, which would mean $24.91, delivered New England. No sales at this level have come to light, however.

More Interest Shown

Buffalo, June 3.—There is a strong undercurrent of interest in the pig iron market. Inquiries before Buffalo furnaces are for 15,000 to 18,000 tons. Sales of the past week have been around 12,000 tons. The price paid ranged from $19 50 to $20 for the two low silicon foundry grades, and $20 to $20.50 for 2.75 to 3.25 per cent silicon. Basic and malleable were sold within the range of the low silicon grades. One maker reaffirms his intention of making $20 a rock bottom price, but others are cutting this figure 50 cents on fairly large tonnages. Operation is 50 per cent of the district's capacity.

Market Activity Increases

Cleveland, June 3.—Further indications of an increasing demand for pig iron are in evidence this week. While business with the motorcar manufacturers still is slow, other purchasers are coming out for their third quarter requirements. The American Radiator Co. reported last week as having bought a large tonnage for eastern plants apparently has not closed for its needs in this general territory as northern Ohio sellers now have an inquiry from it for 25,000 tons. Total inquiry before a leading interest with headqarters here is approximately 100,000 tons, including several lots of 10,000 tons each. Some of this will be placed as low as $20, valley. Another interest has inquiries for about 50,000 tons. Sellers believe these are the forerunners of a good buying movement. A considerable tonnage is being placed quietly. Buyers sound out the Buffalo or valley markets, determine the lowest figure and close with local sources. This has been done in a number of instances recently. Cleveland makers are shutting out competition from those quarters. One lot of 500 tons for Cleveland delivery was booked in the week at $22, furnace this price being 50 cents below the lowest previous quotation. For outside delivery, prices are uncertain. Some sales in outlying districts have been closed at 50 cents less than a week ago, or $20.50, furnace. Sellers have encountered Buffalo valley prices as low as $19. A purchaser wanting 5000 tons has decided to wait until the American Radiator Co. has closed for its needs in this territory. The aggregate of sales in the week by several large furnace interests in the northern Ohio group is 35,000 tons, representing business entirely outside of Cleveland. No transactions in basic iron are noted this week.

Buyers in No Hurry

Cincinnati, O., June 3.—The $21 price for northern foundry iron has become general here, but it has not precipitated any rush on the part of melters to cover. Melters continue to buy iron only to the extent they have business for it on their books and apparently prefer to buy iron when needed, even though at a certain advance, than to speculate on it. Notwithstanding, pig iron producers are handling a fair volume of inquiries and new business in the aggregate. The Iron Products Co., Columbus, O., bought 400 tons of northern foundry iron at $20.50, Ironton. The Mast-Foos Foundry Co., Springfield, O., is reported to have bought 100 tons of lake iron, while the Ohio Steel Foundry Co., Lima, O., took 100 tons of basic. The $21 furnace price for northern iron seems well established and sellers assert they are not meeting any $20 competition. Southern foundry iron appears available at $20 to $21 Birmingham base, or $24.05 to $25.05 Cincinnati. Obviously the spread between northern and southern iron is too great to make for any great amount of southern selling in this territory. Inquiries before the trade involve small lots.

St. Louis Market More Active

St. Louis, June 3.—In a flurry of buying during the final week of May,

more pig iron was sold than during all the preceding weeks of the month combined. Virtually all of the tonnage was foundry iron for third quarter. The largest aggregate closed by any interest was that of the Sloss-Sheffield Steel & Iron Co. which sold 3000 tons. Two foundries in the district proper took 500 tons each and another purchased 200 tons. The iron will be shipped by river and rail. The combined rate is $1.89 under the all-rail tariff. The St. Louis Coke & Iron Co. sold approximately 1000 tons, including 600 tons to a local stove manufacturer. About 1200 tons of northern iron was sold, bringing the total over 5600 tons. Foundries have been feeling out the market with the view of supplying their third quarter requirements, and during the past several days northern and southern producers of pig iron have showed more firmness regarding prices.

Chicago Price Down to $22

Chicago, June 3.—The pig iron market continues for the present in a mixed situation. The melt is decreasing slightly, but spot sales of 50 to 100 tons are increasing. Prices have again weakened in the past week and northern foundry and malleable were sold at $22, furnace. Sellers see more strength than weakness in the present situation, and believe $22 may be the bottom. Several medium size sales were made into the third quarter. Foundry stocks are so low spot buying is certain to increase. Southern sales continue negligible, with iron available at $21. Charcoal iron sales are mostly in carloads at $26, furnace.

Sell 15,000 to 20,000 Tons

New York, June 3.—Sales of pig iron in this territory during the past week aggregated 15,000 to 20,000 tons. Most of this business is for third quarter shipment but in a number of instances consumers are requesting shipment of part of the tonnage in June. Several of the tonnages were closed without any general inquiries. Current inquiries total about 10,000 tons. The American Radiator Co. reputed as having placed 60,000 tons of iron states that its last big tonnage was placed last November and that it has purchased only odd lots since. During the past week the company has been taking prices on up to 15,000 tons of foundry iron for its Bayonne plant. The Worthington Pump & Machinery Corp. which recently inquired for 4800 tons is understood to have purchased several thousand tons. The Essex Foundry Co., Newark, closed on its inquiry for 1000 tons. Another Newark foundry bought 1000 tons of foundry iron. The eastern Pennsylvania foundry iron market now is $20 to $20.50, furnace, with some variations. On Buffalo foundry iron the market continues $19.50 to $20, furnace, with reports that the inside figure has been shaded.

Eastern Market Active

Philadelphia, June 3.—Pig iron buying has reached active proportions. In the past week eastern Pennsylvania furnaces booked a total of approximately 40,000 tons, of which about half is for New York territory and the remainder in this district. This involved several thousand tons of basic, 2000 tons of low phosphorus, some gray forge, some malleable and off-grade iron. The greatest portion was standard foundry iron. Foundry iron orders in this territory generally are comprised of less than 1000-ton lots, except for purchases made by the United States Cast Iron Pipe & Foundry Co. which amount to considerably more. On the past week's business the market declined to $20.50 to $21, furnace, with exceptional instances where $20.50 base, was shaded.

Edward E. Marshall's Lochiel furnace is scheduled to blow out next week.

Hope For Improvement

Birmingham, Ala., June 2.—Southern furnace interests are still hopeful that the present month will see a decided change for the better in demand. The statistics for the past month will show a larger production of iron than April and stocks on yards will not have increased materially, foundry iron stocks being the most considered. Quotations are given at $21 to $22 for business booked is small. Some car-No. 2 foundry, but more than one furnace interest asserts that no sales have been made as low as $22. A small interest is said to have sold a little iron at $21. One furnace interest states that its small lot sales lately have been at $23 but the total business booked is small.

Prices Present and Past

Representative market figures yesterday, and for last month, three months ago and one year ago

	June 4, 1924	May, 1924	Mar., 1924	June, 1923
PIG IRON				
Bessemer, valley del., Pitts....	$23.76	24.06	24.86	30.27
Basic, valley	20.00	20.70	22.00	27.35
Basic, eastern del., eastern Pa..	20.75	20.75	21.50	28.14
*No. 2 foundry, del. Pitts....	21.76	22.66	24.26	29.52
No. 2 foundry, Chicago	22.00	22.80	24.50	31.25
*Southern No. 2, Birmingham..	21.00	21.65	23.00	26.75
*Southern Ohio, No. 2, Ironton.	21.00	22.50	23.50	28.25
**No. 2X, Virginia furnace	25.50	25.50	26.00	28.00
**No. 2X eastern, del. Phila....	22.13	22.60	24.13	28.25
Malleable, valley	20.50	21.30	22.50	30.60
Malleable, Chicago	22.00	22.80	24.50	31.25
Lake Superior charcoal, Chicago	29.04	29.04	29.04	36.65
Gray forge, val., del. Pittsburgh	21.26	23.26	24.26	29.02
Ferromanganese, del., Pitts.	112.29	112.29	112.29	129.79
SEMIFINISHED MATERIAL				
Sheet bars, bessemer, Pittsburgh	40.00	40.60	42.50	42.90
Sheet bars, open-hearth, Pitts....	40.00	40.60	42.50	42.90
Billets, bessemer, Pittsburgh....	38.00	39.20	40.00	42.90
Billets, open-hearth, Pittsburgh..	38.00	39.20	40.00	42.90
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.20	2.25	2.40	2.40
Steel bars, Chicago	2.25	2.35	2.50	2.50
Steel bars, Philadelphia	2.52	2.57	2.67	2.745

	June 4, 1924	May, 1924	Mar., 1924	June, 1923
FINISHED MATERIAL (Continued)				
Iron bars, Philadelphia	$2.47	2.47	2.57	2.72
Iron bars, Chicago mills	2.25	2.28	2.40	2.60
Beams, Pittsburgh	2.20	2.25	2.50	2.50
Beams, Philadelphia	2.42	2.42	2.62	2.82
Beams, Chicago	2.45	2.45	2.60	2.60
Tank plates, Pittsburgh	2.15	2.25	2.40	2.50
Tank plates, Philadelphia.....	2.32	2.42	2.57	2.845
Tank plates, Chicago	2.45	2.45	2.60	2.60
Sheets, blk., No. 28, Pittsburgh	3.65	3.65	3.75	3.85
Sheets, blue anl., No. 10, Pitts.	2.80	2.80	2.95	3.00
Sheets, galv., No. 28, Pittsburgh	4.80	4.80	4.90	5.00
Wire nails, Pittsburgh.....	2.90	2.95	3.00	3.00
COKE				
Connellsville furnace, ovens	3.25	3.35	4.05	4.65
Connellsville foundry, ovens	4.25	4.30	4.85	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh..	16.00	15.40	19.75	20.50
Heavy melting steel, eastern Pa.	15.25	14.70	17.00	18.65
Heavy melting steel, Chicago ..	13.75	13.75	16.70	17.75
No. 1 wrought, eastern Pa.....	17.75	17.75	19.00	22.75
No. 1 wrought, Chicago	13.25	13.60	16.05	16.95
Rails for rolling, Chicago	15.00	15.30	19.30	19.40

*1.75 to 2.25 silicon **2.25 to 2.75 silicon.

Composite Market Average

Representing the Combined Average Prices Per Ton of Fourteen Leading Iron and Steel Products Yesterday, One Week, One Month, Three Months, One Year and Ten Years Ago.

June 4, 1924	May 28, 1924	May, 1924	Mar., 1924	June, 1923	June, 1914
$40.84	$41.14	$41.38	$43.24	$46.46	$22.58

Products Included Are Pig Iron, Billets, Slabs, Sheet Bars, Wi re Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

Iron and Steel Prices

SCRAP PRICES, PAGE 1526; WAREHOUSE, PAGE 1522; ORE NUTS, BOLTS AND RIVETS AND PIPE PRICES, PAGE 1528

Pig Iron

Prices per gross ton

Bessemer, valley	$22.00
Bessemer, Pittsburgh	23.76
Basic, valley	20.00 to 20.50
Basic, Pittsburgh	21.76 to 22.26
Basic, Buffalo	19.50 to 20.00
Basic, del., eastern Pa.	20.75
Malleable, valley	20.50 to 21.00
Malleable, Pittsburgh	22.26 to 22.76
Malleable, Chicago	22.00 to 22.50
Malleable, Buffalo	19.50 to 20.00
Malleable, del., eastern Pa.	22.50 to 23.50

FOUNDRY IRON SILICONS

No. 2 Northern	1.75 to 2.25
No. 2 Southern foundry.	1.75 to 2.25
No. 2X East'n and Virginia	2.25 to 2.75
No. 1X Eastern	2.75 to 3.25
No. 1 Chicago	2.25 to 2.75
No. 2 foundry Eastern.	1.75 to 2.25

No. 1X, eastern del., Phila.	22.39 to 23.76
No. 1X, Buffalo	20.50
No. 2 foundry, valley	20.00 to 21.00
No. 2 foundry, Pittsburgh	21.76 to 22.76
No. 2 foundry, Buffalo	19.50 to 20.00
No. 2 foundry, Chicago	22.00 to 22.50
No. 2 foundry, Granite City	23.00 to 23.50
No. 2 foundry, Ironton fur.	21.00
No. 2 foundry, Cleveland, del.	22.50 to 23.00
No. 2 foundry, del., Phila.	21.39 to 22.76
No. 2 foundry, N. J. tidewater	21.76 to 23.13
No. 2X, eastern, del., Phila.	21.89 to 23.26
No. 2X, east. N. J. tidewater	22.26 to 23.63
No. 2X, eastern del., Boston	24.65 to 25.65
No. 2X, foundry, Buffalo fur.	19.50 to 20.00
No. 2X, Buffalo, del. Boston	24.91 to 25.91
No. 2 southern, Birmingham	21.00 to 22.00
No. 2 southern, Cincinnati	25.05 to 26.05
No. 2 southern, Philadelphia	29.30 to 30.30
No. 2 southern, Chicago	27.01 to 28.01
No. 2 southern Cleveland	27.01 to 28.01
No. 2 southern, Boston (rail and water)	27.91 to 28.91
No. 2 southern, St. Louis	26.17 to 27.17
No. 2X, Virginia furnace	25.50
No. 2X, Virginia, Phila.	30.17
No. 2X, Virginia, Jersey City	31.04
No. 2X, Virginia, Boston	31.41
Gray forge, eastern Pa.	20.50 to 21.50
Gray forge, val. del., Pitts.	21.26 to 22.26
Low phos., standard, valley	29.00
Low phos., standard, Phila.	nominal
Low phos., Lebanon, furnace	25.00 to 27.00
†Low phos., English, Phila.	27.26 to 27.76
Charcoal, Birmingham	31.00 to 33.00
Charcoal, Superior Chicago	29.04

Silvery Iron
Jackson County, Ohio, furnace

7 to 8 per cent	29.00
8 to 9 per cent	30.50
9 to 10 per cent	32.50
10 to 11 per cent	34.50
11 to 12 per cent	37.00
12 per cent	39.50

Bessemer Ferrosilicon
Jackson County, Ohio, furnace

10 to 11 per cent	39.50
11 to 12 per cent	42.00
12 to 13 per cent	44.50

Ferroalloys

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	107.00 to 107.50
Ferromanganese delivered Pittsburgh	111.79 to 112.29
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	35.00 to 38.00
†Spiegeleisen, English, delivered tidewater	35.00 to 38.00
Ferrosilicon, 50 per cent contract freight allowed	75.00
Ferrotungsten standard, cents per pound contained	88.00 to 93.00
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	10.00 to 10.25
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	$3.50 to $3.75
Ferro carbon-titanium, carloads, producer's plant, per net ton	$200.00

†Duty paid.

Coke

Beehive, Ovens

Prices per net ton

Connellsville furnace	$3.25 to 3.50
Connellsville foundry	4.25 to 5.00
New river foundry	9.00 to 10.00
Wise county furnace	3.75 to 4.50
Wise county foundry	4.00 to 5.00
Alabama furnace	5.00 to 5.50
Alabama foundry	6.00

By-Product

Foundry, Newark, N. J., del	$10.41
Foundry, Chicago, ovens	12.50
Foundry, Boston, delivered	12.00
Foundry, St. Louis	12.00
Foundry, Granite City, Ill.	12.00
Foundry, Alabama	6.00 to 6.50

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Open-hearth, Pittsburgh	$38.00
Open-hearth, Youngstown	38.00
Open-hearth, Philadelphia	43.17 to 45.17
Bessemer, Pittsburgh	38.00
Bessemer, Youngstown	38.00
Forging, Pittsburgh	43.00
Forging, Philadelphia	47.17 to 50.17

SHEET BARS

Open-hearth, Pittsburgh	$40.00
Open-hearth, Youngstown	40.00
Bessemer, Pittsburgh	40.00
Bessemer, Youngstown	40.00

SLABS

Pittsburgh	38.00 to 40.00
Youngstown	38.00 to 40.00

WIRE RODS

¼-inch and finer

Wire rods, Pittsburgh	$48.00

Standard extras, $2.50 per ton over ¼-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	2.20c to 2.25c
Universal skelp, Pittsburgh	2.20c to 2.25c
Sheared skelp, Pittsburgh	2.20c to 2.25c

Shapes, Plates and Bars

Prices per pound

Structural shapes, Pittsburgh	2.20c to 2.25c
Structural shapes, Phila.	2.32c to 2.57c
Structural shapes, New York	2.34c to 2.59c
Structural shapes, Chicago	2.45c
Structural shapes, Birmingham	2.35c to 2.45c
Tank plates, Pittsburgh	2.15c to 2.25c
Tank plates, Philadelphia	2.22c to 2.42c
Tank plates, New York	2.24c to 2.44c
Tank plates, Chicago	2.45c
Tank plates, Birmingham	2.35c to 2.40c
Bars, soft steel, Pittsburgh	2.20c to 2.25c
Bars for cold finishing, Pitts.	2.35c to 2.40c
Bars, soft steel, Philadelphia	2.52c to 2.62c
Bars, soft steel, New York	2.54c to 2.64c
Bars, soft steel, Chicago	2.25c to 2.35c
Bars, soft steel, Birmingham	2.35c to 2.40c
Bars, refined iron, Pittsburgh	3.00c to 4.75c
Bars, rail steel, Chicago	2.20c to 2.23c
Bars, rail steel, mill	2.10c to 2.20c
Reinforcing bars, billet, Pitts.	2.20c to 2.25c
Bar iron, common, Phila.	2.47c to 2.57c
Bar iron, common, New York	2.49c to 2.59c
Bar iron, common, Chicago	2.25c to 2.35c
Bars, forging quality, Pitts.	2.45c to 2.50c

Hoops, Bands, Strip

Prices per pound

Hoops, Pittsburgh, under 5 in.	2.75c to 2.90c
Hoops, Pittsburgh, 20 gage, under 1 in.	3.00c to 3.35c
Bands, Pittsburgh	2.75c to 2.90c
Hot rolled strip steel, Pittsburgh stamping quality	2.60c to 2.75c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	4.50c

Cold Finished Steel

Prices per pound

Cold finished steel bars, Pittsburgh base, carloads	2.90c to 3.00c
Cold-finished steel bars, base Pittsburgh, less carloads	3.00c to 3.15c
Steel shafting, Pittsburgh	2.90c to 3.00c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-hearth rails, mill	43.00
Relaying rails, St. Louis	27.00 to 32.50
Relaying rails, Pittsburgh	25.00 to 28.00
Light rails, 25 to 45, mill	1.90c to 2.00c
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.90c to 3.00c
Spikes, small railroad, Pitts.	3.25c to 3.40c
Spikes, boat and barge, Pitts.	3.40c
Spikes, railroad, Chicago	3.10c
Track bolts, Pitts. standard	3.75c to 4.00c
Track bolts, Pitts., small	4.50c to 4.75c
Track bolts, Chicago	4.10c
Tie plates, Pittsburgh	2.50c to 2.55c
Ties plates, Chicago	2.60c

Spike, tie plate and truck bolt prices for carlots.

Wire Products

To Jobbers in Carloads

Prices per pound

Wire nails, Pittsburgh	2.90c
Galv'd nails, 1-inch and over	5.15c
Plain wire, Pittsburgh	2.65c
Annealed wire, Pittsburgh	2.80c
Galvanized wire, No. 9 gage, Pittsburgh	3.25c
Barbed wire, painted, Pitts.	3.35c
Barbed wire, galv., Pitts.	3.70c
Polished staples, Pittsburgh	3.35c
Galvanized staples, Pittsburgh	3.70c
Coated nails, count keg Pittsburgh	2.40c
Woven wire fencing (retailers)	65 off
Woven wire fencing (jobbers)	67½ off

Sheets

SHEET MILL BLACK

Prices per pound

No. 28, open-hearth, Pitts.	3.60c to 3.85c
No. 28, bessemer, Pitts.	3.60c to 3.85c
No. 28, open-hearth, Phila.	3.92c to 4.07c
No. 28, open-hearth, Chicago.	4.09c to 4.19c

TIN MILL, BLACK

No. 28, open-hearth, Pitts.	3.75c to 3.85c

GALVANIZED

No. 28, open-hearth, Pitts.	4.75c to 5.00c
No. 28, bessemer, Pittsburgh	4.75c to 5.00c
No. 28, open-hearth, Phila.	5.07c to 5.22c
No. 28, open-hearth, Chicago	5.19c to 5.34c

BLUE ANNEALED

No. 10, open hearth, Pitts.	2.75c to 3.00c
No. 10 bessemer, Pittsburgh.	2.75c to 3.00c
No. 10, open-hearth, Phila.	3.07c to 3.22c
No. 10, open-hearth, Chicago.	3.34c

AUTOMOBILE SHEETS

No. 22, Pittsburgh	5.10c

Tin Plate

Prices per 100-pound box

Tin plate, coke base, Pitts.	$5.50

Iron and Steel Pipe

Base Discounts Pittsburgh to Jobbers in Carloads

	Black	Galv.
1 to 3-inch, butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3⅛ to 3¾-inch	35

Chain, Piling, Cut Nails

Prices per pound

Chain, 1-in. proof coil, Pitts	6.00c to 6.25c
Sheet piling base, Pittsburgh	2.30c
Cotton ties, bundle 45 lbs. Pittsburgh	$1.71
Cut nails, Pittsburgh	3.00c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$59.20 to 60.20
Six-inch and over, Chicago	55.20 to 57.20
Four-inch, Birmingham	52.00 to 53.00
Six-inch and over Birmingham	48.00 to 49.00
Four-inch, New York	65.60 to 66.60
Six-inch and over, New York	60.60 to 61.60
Standard fittings, Birmingham, base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B.

Little Change in Scrap

Declines and Advances at Same Time as Local Conditions Change—Consumers Generally Refuse to Buy on Present Low Operation

SCRAP PRICES, PAGE 1526

Chicago, June 3.—Largely because of inactivity, iron and steel scrap has slipped back 50 cents a ton. Dealers say last week was the quietest this year. An East Chicago foundry has purchased a small tonnage of couplers and knuckles. Dealers generally are out of orders and none appear in sight. The market today is on the level of $13.75 to $14.25 for heavy melting steel. Railroad offerings include 3800 tons by the Santa Fe, 3000 tons by the Union Pacific, 2000 tons each by the St. Paul and the Chesapeake & Ohio, 800 tons by the Monon, 500 tons by the Elgin, Joliet & Eastern and blind lists by the New York Central, Erie, and Michigan Central.

Better Tone Assumed

New York, June 3.—Although prices are highly unsettled, the iron and steel scrap market is assuming a little better tone. Several consumers who have been out of the market of late are commencing to feel out the situation, and in a few instances, notably clean cast borings and wrought pipe, prices have been slightly advanced. Another encouraging feature is the lifting of the embargo on borings and turnings by the Bethlehem Steel Co. and the possibility of similar action on the part of this interest shortly on railroad steel. There are, however, some weak developments in the reduction of prices on shafting, grate bars and rails for rolling.

Price Trend Upward

Philadelphia, June 3.—The upward trend in iron and steel scrap prices here is unmistakable. At least half of the listed grades advanced from 50 cents to $2. These increases were on small sales mostly as large transactions continue absent. It is expected that some good sized business in heavy melting steel will develop shortly. Advances in prices are occurring despite the fact that all scrap has been embargoed at Bethlehem for the last two weeks and all steel scrap at Sparrows Point, Md.

Not Anxious to Buy

Pittsburgh, June 3.—Fortified with large stocks of iron and steel scrap compared with present operating rates, consumers are not manifesting anxiety about increasing them. While occasionally they make offers on these, they usually are below what dealers are willing to pay and sales do not result. For instance, one or two nearby consumers and one in Weirton, W. Va., are offering only $15.50 for heavy melting steel, while dealers are paying $16 and will not sell for less than $16.50. Sales of 100 to 150 tons of borings and turnings, are noted and one order for 150 tons of cast iron borings was taken at $14.50. Today they are not quite so strong and are quoted at $13.50 to $14. Low phosphorus punchings have sold at $20 and this grade moves upward. One offer to pay $15 for compressed sheets is noted but brokers will not sell even at that figure which is $1 higher than the last preceding transaction. Machine shop turnings have sold at $13.50 and are quoted today at $13 to $13.50, the same as shovel turnings which usually are worth $1 more. For the time being users will pay higher than $13 to $13.50. Much interest is aroused over the closing of bids today on the Pennsylvania railroad's list involving in excess of 40,000 tons.

Operations at Low Point

Buffalo, June 3.—With operation at its low point of the year and with no great volume of new business in immediate prospect Buffalo consumers are not disposed to take anything more than a passive interest in iron and steel scrap. Regardless of the size of their stocks, some of which are reported to have been reduced materially, they will not buy real tonnage while the present dull market for finished materials continues. Sales have been so few and on such a small scale that quotations have become almost entirely nominal.

Higher at Cleveland

Cleveland, June 3.—Increased movement of scrap has stiffened prices in the Cleveland district, quotations practically throughout the list being marked up, some only 25 cents a ton and others $1. Activity centers largely in borings and turnings, particularly for blast furnace use, demand from melters being more general than for some time. Other grades are being bought sparingly and to cover spot needs only. Heavy melting steel has been advanced from $13.50 to $13.75 to $14 to $14.25; machine shop turnings up $1 to $12 to $12.25; shovel turnings for blast furnace use advanced similarly to $12.75 to $13.

Detroit Dealers Trading

Detroit, May 31.—The iron and steel scrap market continues dull as mills

(*Concluded on Page* 1479)

Billet Prices Are Softer

Tonnage Available at $38, Some Lots Reported Moved at Less—Demand for Semifinished Material Continues Light

SEMIFINISHED STEEL PRICES, PAGE 1469

Pittsburgh, June 3.—Orders and inquiries for semifinished material as well as specifications on sheet bars, billet and slab contracts are scarce. While some rerolling billet contracts have not as yet been reduced to the $38, Pittsburgh or Youngstown base price, $38 is the market level and even that price is practically untested. Forging billets are unchanged at $43, makers maintaining the $5 differential over rerolling billets. Occasionally a specification against a contract is received from the oil well machinery industry. Wire rods are quoted generally at $48, Pittsburgh, on ⅜-inch or lighter rods, heavier ones taking the $2.50 differential. Demands are small. Skelp is unchanged at 2.20c to 2.25c, although the market is untested.

Market Is Quiet

Cleveland, June 3.—While some small tonnages of billets have been sold recently at $38, valley, for prompt delivery, the market for semifinished material in general is dull. Some makers are quoting a range of $38 to $39, valley, on billets and slabs, depending on the desirability of the business, though a price of $38 is readily obtainable in most quarters. Sheet bars are held nominally at $40. There is not sufficient business to test the market. Orders taken recently are confined entirely to spot material, books for the third quarter not having been opened.

Valley Market Dull

Youngstown, O., June 3.—With district sheet mill operation on the basis of 52 per cent, little demand for sheet bars is apparent. Dullness has existed in the semifinished market for a lengthy period and little hope for renewed activity in the immediate future is entertained. Practically all tonnage coming off semifinishing mills represents released specifications. Consumers are taking in sheet bar tonnages in such volume as is covered by sheet specifications and tonnages in this connection are meager. While actual sheet bar business is lacking, $40, Youngstown, represents the basis upon which tonnage could be placed.

Selling More Billets

Philadelphia, June 3.—Somewhat better billet sales are noted, totaling over 1000 tons in the week, rerolling billets continue $38 to $40, Pittsburgh, and forging quality $42 to $45.

Indian Ferro

Being Offered at $100 Seaboard but Little Closed—Alloys Still Dull

FERROALLOY PRICES PAGE 1469

Pittsburgh, June 3.—Producers and sellers of ferroalloys still report a quiet market. Only three or four inquiries have developed this past week in ferromanganese, each of which calls for a single carload. Consumers ferromanganese stocks, however, are not heavy and this is true generally of all of the alloys. Contract customers of domestic makers of ferromanganese during the past few weeks have asked that deliveries be extended into the future, but for several days past they have found that their specifications have been spread too thin and they are running short. Accordingly they are filing requests that a larger amount be allowed to come forward. This is taken as an encouraging sign. The Indian ferromanganese, referred to last week, has been offered here at as low as $100 base, Atlantic seaboard. This

material is guaranteed 75 per cent and may run 76 to 78 per cent in manganese content but is higher in phosphorus than domestic and British. Little has been sold, consumers generally preferring to pay the $107.50 seaboard base figure for the standard material.

Spiegeleisen shows no activity. Prices are unchanged.

Spot Sales Are Larger

New York, June 3.—Sales of ferromanganese continue restricted to spot shipment, but the total involved is somewhat larger. Sales in the past week involving mostly single carloads, aggregated about 1000 tons, all at $107.50, duty paid tidewater. Spiegeleisen sales have been restricted to a few carloads which went at around $37 furnace, for 20 per cent metal.

Wire Price Steady

Producers Holding Recent Levels Meeting Occasional Competition

WIRE PRICES, PAGE 1469

Pittsburgh, June 3.—Makers of wire products generally are seeking to stabilize prices on the basis of 2.65c for plain wire and 2.90c for wire nails. Incoming business is limited, representing about 50 per cent of capacity. While shipments for May would perhaps be upon the same basis, it is not expected that June will equal that unless improvement should develop before the month is out. The fencing discount is unchanged at 65 off to retailers. June 1 the guarantee against price decline upon stocks in makers' hands expired and no further guarantees are contemplated.

Demand is Colorless

Chicago, June 3.—The situation in wire and wire products remains practically stationary. Jobbers' orders are slow and for small tonnages in view of the certainty of prompt deliveries. Price competition remains keen but it is claimed no lower than 2.65c, Pittsburgh, has been done on plain wire and 2.90c on wire nails.

Strip Orders Are Slim

STRIP PRICES, PAGE 1469

Pittsburgh, June 3.—Orders for hot and cold-rolled strip steel have been small and nothing of interest is developing. Operations are dwindling and the average is not above 50 per cent. Some plants are starting up today and will close down Friday night. Lack of specifications, limited new business, and one or two cancellations or suspensions from automotive interests are reasons for curtailing output. In this situation makers are not being stampeded into giving price concessions, believing that nothing is to be gained by selling at a loss. Hot strips still are quoted at 2.60c and on some of the narrow sizes as high as 2.75c is obtained. Cold strips are firm at 4.50c base Pittsburgh.

E. N. Chilson has been appointed receiver of the Bear Tractors Corp., 53 Park Place, New York. Liabilities are given as $700,000 and assets at about $100,000.

Coke Contracts Modified

Sellers Bringing Prices Into Line with Reduced Costs—Wage Revisions Are More General—New Demand Restricted

COKE PRICES, PAGE 1469

Pittsburgh, June 3.—With production down 57 per cent from the March 15 basis, activity in the beehive coke market centers about a few shipments on contracts and a limited number of spot sales. The latter are made at $3.25 to $3.50. It is understood a few quarterly contracts booked early in the year at $4.25 are being revised in harmony with reduced wage scales. Practically all coal and coke producers in Fayette county are going back to the November, 1917, basis, except the Rainey and Frick interests. These are expected to take similar action later. No large contracts have been booked since one valley furnace placed 12,000 tons monthly, June to August, establishing the contract market at $3.25. The Adrian Furnace Co., however, has since purchased 50 to 100 carloads for June payment at $3.35. Other small lots of standard furnace coke are bringing $3.30 to $3.40. One public utility contract involving a single carload daily has been covered for June at $3.50. The Claire Furnace Co. closed for Youngstown by-product coke for June at about $4.75, Youngstown. No inquiries are current for standard or medium sulphur furnace grades. Some foundry coke producers until recently quoting $5.50 or higher are understood to be revising prices downward. Demand is light, a few carload inquiries developing weekly. Standard selected 72-hour foundry fuel is commonly quoted $4.25 to $5. Premium brands are higher. Production of coke in the Connellsville region for the week ended May 24 was 106,720 tons, as compared with 119,200 tons the preceding week, according to the *Connellsville Courier*.

Eastern Sales Small

New York, June 3.—Trading in coke continues of small proportions in this territory. The market on spot standard beehive foundry coke may be quoted at $4.50 to $5, Connellsville, while higher is being obtained for the better grades. On standard by-product foundry coke the market continues $10.41, delivered at Newark and other northern New Jersey points.

Bookings Smallest in Years

St. Louis, June 3.—Coke buying still is on a hand-to-mouth basis, and advance bookings are the smallest for this season in years. About the only department of the trade showing any life is the industrial coke section, in which some fair orders have been placed during the past two weeks. Foundries are taking only what they require for immediate needs, and are being supplied by the by-product interests.

Cincinnati Market Quieter

Cincinnati, O., June 3.—Activity in coke is considerably less than a week ago. The only price change noticeable is in Wise county coke which has been reduced 50 cents a ton. The foundry grade is quoted at $4 to $5, ovens, and the furnace, $3.75. A leading seller reports an order for 2200 tons of Connellsville foundry coke for shipment over the remainder of this year. By-product ovens report some business involving small tonnages for prompt shipment. The movement of New River foundry coke is not on as large a scale as a week ago. Demand for furnace is lacking. Accumulations in by-product yards continue large and at many of the plants in this district production has been curtailed to a large extent.

Southern Market Firm

Birmingham, Ala., June 2.—Coke quotations are firm ranging from $5 for the furnace grade to $6.50 for small lots of spot foundry fuel. The trade is on a better basis and there is no indication of a deflection either in production or consumption. Curtailment of production in other directions has not as yet affected the coke market here. By-product ovens are working steadily.

Valley Output Lower

Youngstown, O., June 3.—Subsiding demand for various steel products has turned operating schedules downward this week. A loss of 6 per cent in the rate of sheet mill operation is apparent, district mills being scheduled at 52 per cent of capacity compared with 58 per cent a week ago. At the beginning of this week 30 per cent of independent open-hearth capacity was engaged but by Wednesday the Republic Iron & Steel Co. resumed charging of six of its 15 open hearths bringing the district rate to 42 per cent. This represents a loss of 2 per cent compared with the previous week.

Many Furnaces Out

Pittsburgh, June 3.—Eight additional blast furnaces have been put out by the Carnegie Steel Co. in the past two weeks, including two each at Ohio, Edgar Thomson and Duquesne, and one each at Mingo Junction and Clairton. This gives it but 27 active out of 59 furnaces. The Sharpsville Furnace Co., Sharpsville, Pa., is putting its stack into blast this week.

The Carnegie Steel Co. is maintaining steel production on about a 50 per cent rate, which is the general average rate of steel works operation in the Pittsburgh area.

Chicago Still Loses

Chicago, June 3.—One more steelworks stack at Gary is out on account of the necessity for repairs but this may be put in again later this week. With this stack out, the two leading steelmakers in this district have 16 out of 30 steel works stacks active. Steel ingot operations in the Chicago district are from 60 to 65 per cent, or about 5 per cent below last week.

Bars Show Weak Spots

Users Buy Only Immediate Needs as Deliveries Are Prompt—Prices Continue Weak and Production Declines in All Centers

BAR PRICES, PAGE 1469

Chicago, June 3.—Except for further weakness in price, the past week has been colorless in finished steel. New business in soft steel bars has declined again. With consumers' stocks so low, makers believe any turn must be for the better. The fight to maintain 2.35c, Chicago, for soft steel bars appears to be losing. Lower prices reported for several weeks from points outside of Chicago but within what is known as the Chicago district appear to have spread, and 2.25c to 2.35c, Chicago, now seems warranted.

One maker of bar iron is down this week. The reduction to 2.25c, Chicago, has not stimulated business. Rail steel bar business also is declining, and single turn operations are difficult to maintain. The rail steel bar price is 2.20c to 2.23c, Chicago.

New England Sales Decline

Boston, June 3.—While bar inquiry points to better buying actual sales of the past week dropped to about 70 per cent of the previous week. Prices are fairly well established at 2.20c, Pittsburgh and attractive tonnage is able to command concessions below this figure. Inquiry includes several round lots which seem to be on the point of closing.

Buying Somewhat Better

Philadelphia, June 3.—Steel bar buying was somewhat better last week but the volume continues unsatisfactory. Pennsylvania railroad bought several hundred tons, this being the largest transaction in the market which continues 2.20c to 2.25c, Pittsburgh.

Small Tonnages Moving

Pittsburgh, June 3.—Large tonnage inquiries and specifications still are absent from the merchant steel bar market. Because small tonnages are moving to a more diversified line of consumption than plates or shapes, merchant steel bars are holding their own as to price, being quotably unchanged at 2.20c to 2.25c, base Pittsburgh. Relatively small contracting was done for second quarter and unless conditions improve only a limited total will be done for third quarter. Buyers seem inclined to cover only spot wants in the open market, prompt deliveries being assured everywhere.

Refined iron still is quoted at 3.00c to 4.75c base Pittsburgh. Spotty demand is encountered and producers of refined iron bars are operating about 50 per cent of capacity.

Market Still Dragging

Cleveland, June 3.—New business in steel bars still is dragging in this territory as buyers either have little new tonnage to place or are holding back because of doubt over prices. The market is weaker in that 2.20c, Pittsburgh, now has become the common open price among the larger sellers. Attractive business probably would develop a lower figure and some of the smaller mills are said to have been quoting down on desirable tonnage. Some mill representatives in this territory report their business in May was slightly ahead of April. Cut hoops are selling at around 2.75c, Pittsburgh, but this has been shaded. Some mills also are shading this figure considerably on hot rolled strip steel.

Cold Finished Market Dull

Pittsburgh, June 3.—No interest is developing in cold finished bars in inquiries, new orders or releases on contracts. Producers say they never saw a market so dull and featureless, even in 1921. Operations do not average more than 40 or 50 per cent of capacity. Under these conditions nothing develops the real price situation but the market is quoted at 2.90c to 3.00c, base Pittsburgh, the minimum representing a decline of $2 per ton applying on the larger and more attractive lots.

Hoop Makers Lack Orders

HOOP PRICES, PAGE 1469

Pittsburgh, June 3.—Hoop and band makers begin to feel the pinch of slackened buying and one plant has its 8-inch and 10-inch mills idle this week. Others are curtailing operations and the average is not more than 45 or 50 per cent of capacity. Some makers still have a nominal quotation of 2.90c base Pittsburgh, while others are quoting 2.75c but the market practically is untested. On hoops 1-inch and under in the thinner gages, higher prices are obtainable because of limited production.

Bolt, Nut, Rivet Prices Still Being Shaded

NUT AND BOLT PRICES, PAGE 1528

Pittsburgh, June 3.—To induce buying makers of nuts, bolts and rivets are extending every advantage possible to their customers during the dull period. Instead of quoting 60, 10 and 10 off on large machine bolts they are naming 60 and 20 off, with other prices in accordance. This is slightly lower than the former discount but it has not brought many orders, and operations do not average 50 per cent of capacity. Occasionally a small order develops for a carload but less-than-carload orders are more numerous. Structural rivet makers still quote 2.60c base Pittsburgh although some concessions are reported in other sections. The discount on small rivets is unchanged at 70 and 10 off.

Defer Third Quarter Bookings

Chicago, June 3.—In normal times makers of bolts and nuts would now be booking third quarter business but in the present unsettled state it is probable nothing along this line will be done until late in June. As third quarter schedules of automobile makers in the Detroit district come out it is apparent they will take less than 50 per cent of usual requirements. In the implement business there are no signs of revival. The market for bolts and nuts continues at 60, 10 and 10 off for large machine bolts.

Sheet and Tin Plate Wage Scale Reaffirmed

Atlantic City, N. J., June 3.—There will be no change in the wage scale agreement between the Amalgamated Association of Iron, Steel and Tin Workers and the Western Sheet and Tin Plate Manufacturers association, for the ensuing 12 months. This was decided today, when the conference of representatives of the employes and employers adjourned, after having agreed upon the present scale.

Despite the fact the Amalgamated demanded increases averaging 25 per cent for sheet and tin plate mill workers, the conservative element was in control, and the outcome was as expected by the sheet and tin plate manufacturers. The conference began here May 27, and at the outset the manufacturers informed the Amalgamated delegation that business conditions would not justify a wage increase. They gave what practically amounted to an ultimatum: The agreement in force would be ratified for another year, or the mills would be closed. The union's leaders had only this proposition to consider, and they yielded, rather than force a shutdown. About 25 per cent of the hot mills of the country have union agreements.

The conference of the Western Bar Iron association with Amalgamated representatives will follow in a few days, possibly June 6, though the date is not definite. The Amalgamated demands wage advances for bar mill workmen averaging 10 to 15 per cent.

Rebuild Veteran Stack

Youngstown, O. June 3.—Rebuilding of No. 1 stack at the Ohio Works of the Carnegie Steel Co. has been started. The stack was the first built by the corporation in Youngstown about 25 years ago and is being dismantled to be completely rebuilt. Capacity of the furnace will be increased by larger hearth dimensions.

Tube Works Increase

Brussels, May 23.—The Societe des Usines a Tubes de la Meuse, which manufactures pipe in its Val-Benoit plant at Liege and at Flemalle-Haute, is increasing its capital from 12,000,000 Belgian francs to 20,000,000 francs (about $1,000,000). This company was organized by the Societe d'Escaut et Meuse, John Cockerill & Co., and the Societe d'Ougree-Marihaye. In 1919 the Solvay group also took an interest in the company. Originally the capital was 5,500,000 francs; it was increased to 7,000,000 francs in 1913, to 8,000,000 francs in 1919 and to 12,000,000 francs in 1920.

At the Val-Benoit plant, the company manufactures butt-welded steam, gas, and water pipe. The yearly capacity of this plant is about 15,000 metric tons. At Flemalle-Haute seamless tubing is manufactured, the yearly output averaging 24,000 tons. The Societe des Usines

a Tubes de la Meuse export about 12,000 tons of pipe yearly. It is planned to install a number of Ackermann mills in the Flemalle-Haute works, to manufacture certain types of tubes of small diameter.

Stoker Sales Are Steady

Washington, June 3.—Sales of mechanical stokers in April totaled 89, the same number as in March, but considerably below the total of 110 in February, according to reports of the department of commerce. Of the April total, 15 were for fire tube and 74 for water tube boiler installation.

1924	Stokers sold	Fire tube boilers	Water tube boilers
January	91	7	84
February	110	11	99
March	89	12	77
April	89	15	74
1923			
January	145	29	116
February	129	9	120
March	120	9	111
April	167	14	153
May	194	14	180
June	135	6	129
July	129	21	108
August	135	18	117
September	99	16	83
October	88	14	74
November	50	10	40
December	73	17	56
Total 1923	1,464	177	1,287

Want American Equipment

Washington, June 3.—An unusual number of requests for catalogs of American machinery and plant equipment have been received by the department of commerce from foreign buyers within the last few weeks. An inquirer of the Rio de Janeiro office of the department plans the erection of a blast furnace plant to produce 20 metric tons of pig iron daily and is seeking information through the office as to American machinery and also as to American steel plant equipment. He is reported as having sufficient backing for his enterprise and is desirous of receiving American catalogs and propositions.

An inquirer at the Brussels office requests catalogs on machinery for manufacturing containers from steel sheets and also seeks quotations on galvanizing machinery for use in his plant.

Metal Refineries Merge

New York, June 3.—Negotiations for the merger of five metal refining companies are nearing completion and the combination to be known as the Federated Metals Corp., is expected to become effective soon. The new company will have an authorized capital of $14,000,000 or $15,000,000. Total capacity of the combine will be 300,000,000 pounds annually, and the combined annual sales of the companies have averaged $39,000,000. The following companies will be included in the merger: Great Western Smelting & Refining Co., Chicago; Duquesne Reduction Co., Pittsburgh; Eagle Smelting & Refining works, New York; Union Smelting & Refining Co., Newark, N. J.; Trenton Smelting & Refining Co., Trenton, N. J.

The organization will be the largest secondary metal company in the country.

Plate Buying in Prospect

Tank Awards Feature an Otherwise Dull Market—Eastern Business Improved Slightly—Lower Prices Appear

PLATE PRICES, PAGE 1469

New York, June 3.—Plate makers show a disposition not to go below 2.00c, Pittsburgh, and at least one eastern mill refuses to go below 2.10c. A leading Pittsburgh mill quotes 2.25c Pittsburgh, on general business, with 2.15c to shipbuilders and large fabricators and 2.10c to carbuilders. Another Pittsburgh maker quotes 2.20c, Pittsburgh. The Standard Oil Co. of Louisiana is inquiring here through the Standard Oil Co. of New Jersey for 2500 tons of plates for tank work at Baton Rouge. The Public Service Corp. of New Jersey is in the market for 500 tons of tank plates for a stack. An increasingly important avenue of consumption for tank plates is the growing business of the Socony Burner Corp., 11 Broadway, New York, a subsidiary of the Standard Oil of New York, whose business is the installation of oil heating units in apartments and other buildings. This company has placed an order with the New York Engineering Co. for the construction of 800 to 1000 oil tanks. The New York Shipbuilding Co., is low bidder on six ferry boats for the city of New York. The bid was a little higher than $22,000 per boat. The Sun Shipbuilding Co. submitted the next lowest bid.

Avoiding Lower Levels

Pittsburgh, June 3.—While some exceedingly low prices on sheared plates have appeared in certain directions, particularly the East, in this market makers are avoiding lower levels, having proved to their own satisfaction that to offer concessions does not increase the size of the order book. They are adhering to 2.25c, Pittsburgh, although some 2.15c and 2.20c prices have appeared. Typical orders involve 50, 100 or 150 tons. What is considered a large order at the moment is that reported by the Pittsburgh-Des Moines Steel Co., this week for 180 tons for a stand pipe at Barberton, O. Oil storage tank inquiries are absent, and practically nothing is being done by boiler manufacturers in placing plate orders. One tank inquiry is current from the Standard Oil Co. of Louisiana calling for eight large tanks involving approximately 3500 tons of steel, mostly plates. Plate capacity is a trifle more than 50 per cent engaged at present.

Lower Prices Are Current

Cleveland, June 3.—Still lower prices on plates are appearing in the market as new business is lagging. The open price of the larger mills has been dropped to 2.20c, Pittsburgh, but on attractive orders this figure could probably be shaded $1 or $2 a ton. It is reported that a carload order placed by a downstate buyer this week went to 2.10c, Pittsburgh. Such prices, however, are exceptional. The low price of 1.80c, base, Pittsburgh, which it is commonly understood was done by mills in this territory on approximately 3000 tons of locomotive steel for the Chesapeake & Ohio railroad is explained by the large extras which this order carried. It is stated a good part of this tonnage took $20 per ton extra for acid steel in addition to $10 per ton for firebox. On another portion of this order which did not come to this district, the price was 2.00c, Pittsburgh. An inquiry is current for 300 tons of plates for stills for a Standard Oil subsidiary, some of which is of 2 and 2⅛-inch thickness.

Seven Large Tanks Placed

Chicago, June 3.—The Chicago Bridge & Iron Co. has been awarded the fabrication of seven 80,000-barrel oil tanks by the Humble Oil Co. for erection in Texas. The 2000 tons of plates in this job have been booked by the leading maker. The Standard Oil Co. of Louisiana, is reported on the verge of closing for the tanks requiring 3600 tons of plates which it plans to erect at Baton Rouge, La. The Chicago Bridge & Iron Co. is close to this job. The Manitowoc Shipbuilding Co. has a contract to build a car ferry for the Ann Arbor railroad providing the interstate commerce commission approves. Producers are attempting to hold to 2.45c, Chicago, for plates but apparently are fighting a losing battle and the quotation remains largely because it has not been tested.

Hoover Encouraged By Business Outlook

Washington, June 3.—Secretary Hoover takes a cheerful view of the business outlook, in commenting on affairs today. He said there is no fundamental cause for the business depression, and expects a quickening of activity in many lines soon. Consumption is steady, and the recent cutting of inventories, he believes, may bring a sudden demand for production. He sees no prospect of deflation. Commenting on the new tax bill signed by the President he said the publicity feature is the worst part of it, as it may damage small corporations.

European Car Order Let

Paris, May 21.—The Compagnie Internationale des Wagons-Lits has divided an order for 120 steel cars between several continental firms. The Ateliers Metallurgiques at Nivelles, Belgium, have been awarded 30 sleeping cars. In France, the S. A. de Traveaux Dyle et Bacalan has obtained 23 dining cars, the Societe Lorraine-Dietrich has been awarded 12 sleeping cars, and 15 sleeping cars have been purchased from the Ateliers de Construction du Nord de la France. In Italy, 25 dining cars have been ordered from the Officine Meccaniche Italiane, five sleeping cars from the Societa Nazionale delle Officine di Savigliano and 10 sleeping cars from the Societa Italiana Ernesto Breda per Costruzioni-Meccaniche. The total value of the order is estimated at about 80,000,000 francs ($4,750,000).

Concrete Market Still Dull

Few Projects Requiring Large Tonnages Are Being Figured—Road Work Continues To Lead Demand—Aggregate Tonnage of Small Jobs Good

REINFORCING BAR PRICES, PAGE 1469

Chicago, June 3.—Users of concrete reinforcing bars continue to defer buying so long as possible in order to take advantage of the weak price situation. With the mills attempting to stabilize the general soft steel bar market at 2.35c, Chicago, sellers of reinforcing bars believe their prices will dip no lower at present. The single price of 2.45c, Chicago, still aptly represents the average of current business. Estimating departments have been less busy the past week.

Road Work Takes Tonnage

Pittsburgh, June 3.—State road work continues to take a fairly large tonnage of concrete bars. Occasionally a contract for building construction involves fair sized tonnages. Concrete Steel Co. was awarded about 300 tons of concrete bars for road work in Butler county and other parts of Pennsylvania last week. The Vang Construction Co., Pittsburgh, was awarded the general contract for a bridge over the Susquehanna river at Clark's Ferry, Pa., near Harrisburg, by the Clark's Ferry Bridge Co. It is estimated this will require 150 tons. The Citizens' Title & Trust Co. building at Uniontown probably will be let this week. Prices continue to show weakness but the quotable range still is 2.20c to 2.25c, base Pittsburgh.

Road Builders Cut Buying

Buffalo, June 3.—Road builders have met their immediate requirements for reinforcing bars, thereby removing for the present at least, the largest outlet for this material. Placements from this source within the past 10 days have exceeded 1000 tons, but very little new business has been placed for new construction. There is not much inquiry from either source.

Movement Continues Restricted

Cincinnati, June 3.—Movement of reinforcing bars continues of small volume in this district. Distributors say that not more than 500 tons were sold last week. The 100 tons for the Baker Alley substation of the Union Gas & Electric Co., was awarded to the Ferro Concrete Construction Co. Bids went in May 31 on the addition to the H. H. Meyer Packing Co.'s plant which will require 150 tons. The bulk of sales in recent weeks has been on small construction and additions to buildings. No change in prices is noted. Liberal road construction work planned by the Ohio and Indiana highway departments will call for large tonnages. On carbon steel bars the Pollak Steel Co., is quoting 2.20c base Marion, O.

More Activity in Sight

Cleveland, June 3.—More activity in the reinforcing concrete bar market is in sight. Numerous projects are being figured requiring from 50 to 100 tons each, although few jobs in this district call for a heavier tonnage. W. S. Tyler Co. will take about 200 tons for a plant addition. Bourne-Fuller Co., took 63 tons for an addition for A. Teachout & Co. Several hundred tons of road work again was placed in this district, divided among several interests. Prices continue weak at 2.20c to 2.25c, Pittsburgh, on billet bars. An attractive tonnage no doubt would obtain a lower quotation. On rail steel bars, 2.00c to 2.10c, mill, continues to be the market. Stock bars are going as low as 2.45c, Pittsburgh, although the general market continues 2.55c to 2.65c, Pittsburgh.

CONCRETE CONTRACTS PLACED

Awards this week	**1,791 tons**
Awards last week	**6,498 tons**
Awards two weeks ago	**5,470 tons**

450 tons, building for A. J. Lindemann & Hoverson Co., Chicago, to Olney J. Dean & Co. Great Lakes Construction Co., 308 South Wabash avenue, Chicago, general contractor.

300 tons, Pennsylvania state road work, to the Concrete Steel Co.

200 tons, Catholic High school at Milwaukee, to Concrete Co. Brust & Philipp, 405 Broadway, architects.

186 tons, Grand Trunk terminal, Nichols, Mich., to Chicago fabricator.

180 tons, Loutellus apartment, Melwood avenue, Pittsburgh, by the Melwood Realty Corp., through the S. M. Siesel Co., Milwaukee, general contractor, to the Truscon Steel Co.

150 tons, New York state road work near Albany, to Kalman Steel Co.

125 tons, high school, Shorewood, Wis., to Concrete Steel Co. Paul Riesen's Sons Co., general contractor.

100 tons, Isolation hospital and boiler house for city of Madison, Wis., to Kalman Steel Co.

100 tons, Baker alley substation, Union Gas & Electric Co., Cincinnati, to Ferro Concrete Construction Co.

CONCRETE CONTRACTS PENDING

500 tons, Veteran's hospital, Aspinwall, Pa.; general contract has not as yet been received from the government by W. F. Trimble & Sons Co., Pittsburgh, low bidder.

200 tons, W. S. Tyler Co. addition, Cleveland; pending.

150 tons, bridge over the Susquehanna river at Clark's Ferry, near Harrisburg, Pa.; Vang Construction Co. general contractor.

100 tons, building for the McKeesport Baking Co., McKeesport, Pa.; bids being taken.

100 tons, addition to the Ohio hotel, Youngstown, O.; bids being taken.

100 tons, Heinz infirmary, Pittsburgh; bids closed June 2.

100 tons building for the Shadyside academy, Pittsburgh; bids closed June 2.

100 tons, addition to Lutheran Deaconess Home hospital, Chicago; plans by Ivar Viehe-Naess & Co., 400 North Michigan avenue, Chicago.

Tonnage unstated, 6-story laboratory for University of Chicago to cost $400,000 at 1750 West Harrison street, Marshall & Fox, 721 North Michigan avenue, Chicago, architects.

Tonnage unstated, $500,000 theater at Division and Mansfield streets, Chicago, for M. & H. Theaters Corp.; plans being prepared by Harold E. Gallup, architect, 110 South Dearborn street, Chicago.

Tonnage unstated, Gray street sewer, Omaha, Neb.; general contract to Jones Construction Co., Omaha.

Issues Refractories List

Another edition, the fifth, of the Directory of Refractories Manufacturers, has been issued by the Refractories Manufacturers' association. This latest list gives not only the brands with the names of the producers, but also gives the manufacturers' names followed by the locations of their various plants. A third section lists the manufacturers of fire clay brick and other refractories geographically, both in this country and in Canada. Copies may be obtained gratis upon application to the office of Frederic W. Donahoe, secretary, 2202 Oliver building, Pittsburgh.

Pipe Market

Lacks Features But Operations Continue High—Cast Grade Dull

PIPE PRICES, PAGE 1469, AND 1528

Pittsburgh, June 3.—Features are absent from the tubular goods market except that small orders continue to find their way to makers' books in sufficient volume to keep pipe mill operations about 20 per cent higher than other steel finishing lines. Bad weather has retarded demand for pipe both in standard full weight merchant pipe, and in oil country goods. The weak oil market has kept drilling activity in check. Jobbers' stocks are not large and when the buying movement does break it is expected to be extensive. In the meantime the mills are conducting what practically amounts to a warehouse business. Particularly in oil country goods is this true. The oil goods jobber waits until he receives the order for line pipe etc., and then sends it along to the mill with the request that shipments be started at once. Often it is possible to comply within a few days after receipt of orders because mill stocks are fairly well balanced. Some supply houses still are liquidating their stocks of standard full weight pipe at bargain prices, hoping that by the time they are ready to buy again the market will have declined. Mill prices appear firm and there is no indication as yet of pipe following the general decline brought about in steel products over the past few weeks.

Municipal Demand Still Low

New York, June 3.—Routine buying characterizes business in the local cast iron pipe market. The situation as a whole is showing little change as compared with a week ago. Prices are steady and municipal demand, lacking for sometime past, is still greatly restricted.

Small Business Continues

Chicago, June 3.—Makers of cast iron pipe continue to enjoy a fair run of small business, ranging in lots from one to three carloads. Since the present is between the early and the late buying seasons, improvement is looked for later in the month. On large sizes some low prices are reported made; one recent letting of 24 to 36-inch pipe is said to have prompted a price below $45, Birmingham. On the smaller sizes, prices are firm, at $59.20 to $60.20, delivered Chicago, for 4-inch.

Plants Still at Capacity

Birmingham, Ala., June 2.—Cast iron pipe plants are operating at capacity with no indications of lagging in the near future. Lettings last week were equal to those of previous periods. Soil pipe and fitting demand is lagging, buying and production slacking up. This is being felt by the furnace interests.

Awards Involve Small Lots

Cleveland, June 3.—Awards of cast iron pipe in this district recently have

been small, municipal buying not being heavy. The waterworks department will buy several good tonnages within the next few weeks. Winterbottom & Conley were awarded the general contract for laying 746 tons of 48-inch pipe in the middle section of the Woodland avenue lines and the pipe will be supplied by the United States Cast Iron Pipe & Foundry Co. Bids have been delayed from June 12 on 1½ miles of pipe for Ridge road, for the water department.

CAST IRON PIPE PLACED

746 tons, middle section of Woodland avenue mains for water department, Cleveland, to United States Cast Iron Pipe & Foundry Co., through Winterbottom & Conley general contractor.
175 tons, Libertyville, Ill., to the National Cast Iron Pipe Co.
100 tons, fittings, Chicago, to National Cast Iron Pipe Co.
100 tons, Kelso, Wash., 4, 6 and 8-inch class C pipe, to McWane Cast Iron Pipe Co.

CAST IRON PIPE PENDING

845 tons, 4 to 16-inch pipe for Anaheim, Cal.; bonds have been voted for the purchase and bids will be called for soon.
823 tons, 30, 36 and 42-inch class B pipe for Bellingham, Wash.; United States Cast Iron Pipe & Foundry Co., low bidder.
660 tons, 4 to 12-inch pipe for Hawthorne, Cal.; bids in June 9.
510 tons, 6, 8 and 10-inch class D pipe for Vancouver, B. C.; Canadian Fairbanks, Morse & Co., low bidder.
Tonnage unstated 1½ miles of pipe for Ridge road, Cleveland; A. D. Ruggles, commissioner of water, taking bids. Closing date postponed from June 12 until appropriation becomes available.

Tin Plate Movement

Far Below Normal—Large Lot Sold to East Russia

TIN PLATE PRICES, PAGE 1469

Pittsburgh, June 3.—Shipments of tin plate still constitute a fairly large aggregate. although the total for May was far from normal. Releases upon contract tonnages are not coming through very fast. Can makers generally have much tin plate either in the form of finished cans, or in the form of plates stored in their own warehouses or on mill floors. Packers' efforts everywhere have been retarded by the bad weather. Open market inquiries are rare, one of fair size being current from a large oil interest for re-export puposes. For the reason that producers are no longer inclined to make the prices sufficiently low on business of this character to meet English competition, it is thought that this order will be placed abroad. The domestic price is unchanged at $5.50 per base box of 100 pounds, Pittsburgh.

Books 75,000 Boxes

New York, June 3.—The American Sheet & Tin Plate Co. has booked 75,000 boxes of tin plate for East Russia, where the material will be used in the fish canneries.

Expect More Buying

Youngstown, O., June 3.—While tin plate production is being held in check by tardy weather conditions producers anticipate renewed buying this month. Production plate is firm at $5.50 per base box, Pittsburgh, while the price of stock plate ranges from $5.15 to $5.25. Some business is being placed but the volume is not encouraging. Mill operation in this district is at 32 per cent of capacity.

Sheet Prices Are Steady

Present General Levels May Be Reaffirmed for Third Quarter—Orders Slightly More Numerous at Pittsburgh

SHEET PRICES, PAGE 1469

Pittsburgh, June 3.—The closing days of May seemed to bring out more sheet orders than appeared in two or three weeks preceding and the sheet producers generally are more encouraged over the outlook. As yet this improvement is not sufficiently well defined to give promise of being sustained. Some attractive business has come to an important maker of blue annealed sheets here, three orders from one buyer involving 10 or 12 carloads being received this past week. Another order involved a few hundred tons, and some pleasing business in that grade also is coming from makers of small portable tanks for the oil fields. Improved weather conditions in some directions are increasing the demand for flat sheets used in building construction work. While occasionally some price concessions have appeared to the extent of $7 or $8 per ton under the American Sheet & Tin Plate Co.'s figures on everything but full-finished automobile sheets, the usual concession is $4 or $5 under the leading interest's figures of 3.00c, 3.85c and 5.00c on blue annealed black and galvanized sheets, respectively. Independent producers, however, are inclined to avoid quoting more than $4 per ton under the leading interest's prices and are more or less at 2.80c, 3.65c and 4.80c, respectively. It may be that these levels will constitute the general market for the third quarter, although no formal announcement has come out. The market for full-finished automobile sheets is fairly well stabulized at 5.10c. Operations still suffer because of lack of business and the average is no higher than 60 per cent. Last week the holiday cut into schedules somewhat and many plants did not do that well.

Market Is Firmer

New York, June 3.—The lowest price now heard on galvanized sheets here is 4.75c Pittsburgh, but this is exceptional and most business is bringing 4.80c. Only recently as low as 4.65c was being done, so that the market is decidedly firmer. Business continues to lack volume. Black sheets in most instances are selling at 3.65c, Pittsburgh, and blue annealed at 2.80c.

Weather May Be Limitation

Chicago, June 3.—New business in steel sheets is low, in keeping with slack demand for iron and steel in general. Makers of sheets in this district feel that 60 per cent operations in hot weather will be doing well, and they believe that at least this much business is in sight. There has been no talk of third quarter buying. The minimums in this district appear to be 2.80c, Pittsburgh, for blue annealed, 3.65c for black and 4.80c for galvanized.

Prices May Be Reaffirmed

Youngstown, O., June 3.—Fundamentally conditions in the sheet market are good, according to producers here, but the market lacks demand. Shipments in a number of instances are exceeding released specifications and as a result stock on warehouse floor is being reduced. Incoming business is averaging 30 to 50 tons. While practically all interest in the current market entails immediate delivery, one mill reports a 300-ton and a 2000-ton inquiry for galvanized sheets for third quarter shipment. Most of the interest in the galvanized market comes from southern consumers. Firmness of price is apparent on all three grades, blue annealed being quoted at 2.80c, black at 3.65c and galvanized at 4.80c, Pittsburgh. Producers expect to reaffirm these prices for third quarter tonnages and an announcement is not far distant according to a reliable source of information. Stocks of high grade sheets, particularly in 20 and 22 gage are low and while demand is not heavy yet some producers are obliged to resort to production even though prompt shipment is desired. High grade stock is firm at 5.10c for No. 22 gage, Pittsburgh. Quietness prevails in this market and in a number of cases complete suspension of mill operation has been necessary.

Some Shading Noted

Philadelphia, June 3.—Eastern sheet operations are averaging 55 to 70 per cent. The market continues 2.80c, Pittsburgh, for blue annealed, 3.65c for black, and 4.80c for galvanized, but, there is some shading, principally on black.

Makes Sales Change

Joseph T. Ryerson & Son, Inc., have become exclusive general sales agents of the brands of iron made by the Penn Iron & Steel Co., Creighton, Pa., consisting of special staybolt iron, engine bolt iron, and drilled hollow staybolts. Sales will be directed by John P. Moses, general manager of railroad sales for the Ryerson company.

The products of the Ulster Iron Works, formerly sold by Joseph T. Ryerson & Son, Inc., will hereafter be marketed by a new selling organization formed.

Joseph T. Ryerson & Son, Inc., by this connection with the Penn Iron & Steel Co. have become associated with George T. Lewis, one of the veteran makers of high grade puddled iron in this country. Mr. Lewis, president of the Penn Iron & Steel Co., is a grandson of George Lewis, who came to this country in 1814 from the Penbarren Iron Works of Wales.

Ore Shipments Large

ORE PRICES, PAGE 1528

Cleveland, June 3.—Shipments of Lake Superior iron ore by the water route in May totaled 6,583,815 tons, 87,890 tons less than in May 1923. The movement this season up to June 1 was 7,243,202 tons, 557,313 tons more than last year. Ore sellers are a little more encouraged over the outlook for more business later in the year, though the market at present is inactive.

Structural Activity Better

Market More Cheerful as Numerous Small Projects Are Brought Out—Awards Again Show Upward Tendency—Price Weakness Continues

STRUCTURAL SHAPE PRICES, PAGE 1469

New York, June 3.—Structural activity over the past seven days has fallen off again, both orders and inquiries being slack. The holiday on Friday, which resulted in many interests being inactive from Thursday until Monday, was undoubtedly a contributing factor. Included in the larger awards of the past weeks are 2500 tons for a department store in Baltimore and 1600 tons for a plant addition for the United States Metals Refining Co., at Carteret, N. J. Members of the Iron League, comprising the great majority of the fabricators and erectors in this city, assert that iron workers are going back to work in greater number, and at the old schedule. One fabricator estimates that approximately 50 per cent of the number working prior to the strike are now on the job.

Bids are to be asked on 4500 tons shortly for the first section of the West Side subway which eventually will require 30,000 tons.

Prices Are Weaker

Philadelphia, June 3.—Structural shape demand was slow last week and prices were weak, ranging all the way from 2.00c to 2.25c, Pittsburgh. In exceptional instances mill prices were done which have a somewhat lower Pittsburgh equivalent.

Future Business Large

Cleveland, June 3.—Structural shape business in the next few months is expected to be much heavier, with fabricators seeking protection for many tonnages not yet in the open market. Several 10-story projects for local construction, buildings and bridgework throughout the state and district, are indicating increased activity. Easier prices on building materials coupled with an increased productiveness from labor, without higher wage scales, are other encouraging features of the structural market. One of the largest tonnages placed in this district in 1924 was the award of 3300 tons for Pennsylvania railroad grade elimination work to McClintic-Marshall Co. This was placed through the Pittsburgh offices of the railroad. Plain material prices are openly quotable at 2.20c, Pittsburgh with lower possible on attractive tonnages. Fabricated prices continue to show wide variance, with individual need for work in many cases causing interests to cut prices to get business.

Inquiry Shows Improvement

Boston, June 3.—Current work is limited to small tonnage jobs. Inquiry shows improvement and fabricators are hopeful of securing a normal amount of fall construction work. Prices are unchanged with shapes at 2.20c, Pittsburgh. Boston building steel averages $90 a ton fabricated and delivered.

Small Jobs Fairly Numerous

Pittsburgh, June 3—Activity among structural shape fabricating shops appears to be confined to small awards. The Pittsburgh Bridge & Iron Works reports orders last week involved about 200 tons made up of numerous small jobs; other shops had similar experiences. The Pittsburgh-Des Moines Steel Co., W. N. Kratzer & Co., and several other shops all have received small orders. The latter is operating at about 70 per cent of capacity and will continue that rate through June and possibly through July. The former is operating practically full this month with nothing ahead, as yet for July. Other shops only have 30 days work ahead on a 70 per cent basis but these are hopeful of accumulating more before the 30 days elapse. Structural shape prices have settled a trifle, and while it no longer is possible to obtain 2.30c or 2.35c base Pittsburgh, makers are avoiding levels below 2.20c and from 2.20c to 2.25c, Pittsburgh, is a fairly representative range of the market prices.

Cheerfulness More Apparent

Cincinnati, June 3.—Structural steel awards in this vicinity have been small in recent weeks, but a feeling of cheerfulness over pending contracts is apparent. Projects let last week will not exceed 750 tons, but reports indicate more than 10,000 tons for industrial needs is about to be let. The Massillon Bridge & Structural Co., was awarded the 200 tons for the new Westminster building, Dayton, O. The Stacey Mfg. Co., has received an order for the Vulcan Oil Co., for a steel tank. Bids will go in this week on the new generating plant of the Union Gas & Electric Co., under construction at Cleves, O., which will require 5600 tons. The price on plain shapes is 2.30c base Pittsburgh.

Great Increase in Activity

Chicago, June 3.—After several weeks of comparative inactivity local fabricators are figuring on as many projects as they have had before them at any time this spring. Some close figuring is being done as order books of most fabricators are quite low. The Jewelers' building, Chicago, requiring 10,000 tons of structurals, is reported about to be let. Up to May 27 building permits in Chicago aggregated $29,000,000 compared with $32,000,000 for all of May, 1923, indicating that structural activity is on a large basis. While mills are attempting to hold to 2.45c, Chicago, on plain material this price is becoming weaker. For Chicago proper the plain material price is 2.45c, but for the Chicago district as a whole probably 2.35c to 2.45c more nearly represents the market.

STRUCTURAL CONTRACTS PLACED

Building awards this week .....22,544 tons
Building awards last week .....14,855 tons
Building awards two weeks ago..23,169 tons

3300 tons, grade elimination work, for the Pennsylvania railroad at Cleveland, to McClintic-Marshall Co.

2500 tons, department store, for the Burnheimer Leader Co., Baltimore, to the McClintic-Marshall Co.

2000 tons, power house for Los Angeles Gas & Electric Co., Seal Beach, Cal., to Llewellyn Iron Works, Dwight P. Robinson & Co., New York, engineers.

1950 tons municipal destructor plant, New York, to A. E. Norton, Inc.

1600 tons, plant addition for the United States Metal Refining Co., Carteret, N. J., to the Pittsburgh Bridge Works.

1100 tons, four bridges for Central of New Jersey railroad, Somerville, N. J., to Bethlehem Steel Co.

1055 tons, machine shop for Santa Fe railroad at San Bernardino, Cal., to American Bridge Co.; general contract to J. E. Nelson & Son, Chicago and Sumner Sollitt Co., Delta building, Los Angeles.

850 tons, loft at West Forty-eighth street, New York, to A. E. Norton, Inc.

820 tons, bascule bridge for Corpus Christi, Tex., to Wisconsin Bridge & Iron Co.; reported last week as 500 tons.

690 tons, wharf and transfer shed for Corpus Christi, Tex., to the Sumner-Sollitt Co.

600 tons, Davis loft building, Forty-fifth street, New York, to Hay Foundry & Iron Works.

500 tons, power house at St. Paul for Ford Motor Co., to Minneapolis Steel & Machinery Co.

500 tons, warehouse for the city of Los Angeles, to Baker Iron Works.

500 tons, power plant for Phoenix Utility Co., Phoenix, Ariz., to Mississippi Valley Structural Steel Co.

450 tons, bridge for the Central of New Jersey railroad, Allentown, Pa., to the McClintic-Marshall Co.

400 tons, institution at Dunkirk, N. Y., to Kellogg Structural Steel Co.

350 tons, bridge for Pennsylvania railroad, to American Bridge Co.

350 tons, LaSalle academy building, Providence, R. I., to Tower Iron Works, Providence; general contract to E. Turgeon Co., Providence.

342 tons, repairs to Eads bridge, St. Louis, to the Mississippi Valley Structural Steel Co.; to be erected by the Terminal Railroad association of St. Louis.

300 tons, grandstand, Interstate fair grounds, Trenton, N. J., to the American Bridge Co.

250 tons, Sacred Heart school, Bayside, L. I., N. Y., to Communipaw Steel Co.,

250 tons, bridge repairs, Fall River, Mass., to T. F. Phelan.

250 tons, building for Penn Allen Portland Cement Co., Allentown, Pa., to McClintic-Marshall Co.

237 tons, building for American Stove Enameling Co., Harvey, Ill., to the Kenwood Bridge Co.

210 tons, addition to Pacific Coast Steel Co. plant at Seattle, to Wallace Equipment Co.

200 tons, Westminster building, Dayton, O., to Massillon Bridge & Structural Co.

200 tons, power plant for the Du Pont interests at Passaic, N. J., to the McClintic-Marshall Co.

196 tons, memorial building and city hall for Chanute, Kans., to unnamed fabricator.

184 tons, senior high school, Rhinelander, Wis., to unnamed fabricator.

180 tons, plates, stand pipe for the city of Barberton, O., to the Pittsburgh-Des Moines Steel Co.

150 tons, metropolitan park bridge, Quincy, Mass., to Boston Bridge Co., Boston; general contract to J. Thomasello & Son, Boston.

130 tons, east end and Lawrenceville substations, Pittsburgh, for the Duquesne Light Co., through Dwight P. Robinson & Co., Inc., to the W. N. Kratzer Co.

125 tons, New York Central station, Elyria, O., to Sprague Iron Works.

105 tons, Hinde & Dauch Paper Co., Sandusky, O., to Fort Pitt Bridge Works.

Tonnage unstated, car ferry for Ann Arbor railroad to the Manitowoc Shipbuilding Co.; expenditure must be approved by interstate commerce commission.

STRUCTURAL CONTRACTS PENDING

4500 tons, Tishman loft building, 25 West Thirty-fourth street, New York; pending.

4500 tons, approximate requirements for first section, West Side subway extension, New York, bids to be asked shortly. Entire work will comprise seven sections and involves 30,000 tons.

2500 tons, powerhouse at Utica, N. Y.; bids asked through Thomas E. Murray, 45 Duane street, New York, engineer.

2500 tons, Jonathan Club building, Los Angeles; reported last week as 1000 tons; pending.

2000 tons, office building for Bethlehem Engineering Corp., Broadway and Forty-fifth street, New York; pending.

1800 tons, Catholic Girls Commercial high school, Brooklyn, N. Y.; pending.

1200 tons, power plant for Sioux City, Iowa; pending.

1000 tons, loft building at West Fortieth street, New York; Buchman & Kahn, 49 West Forty-fifth street, New York, architects.

1000 tons, power plant for H. M. Byllesby & Co., at North Bend, Oreg.; pending.

1000 tons, building for Nugent department store, St. Louis; pending.

1000 tons, Pacific National Bank building, Los Angeles; building being redesigned.

1000 tons, building for Swift & Co., Chicago; pending.

850 tons, inspection shed, 240th street, New York, for Transit Commission; Levering & Garrigues Co., low bidder.

850 tons, highway bridge over the Susquehanna river, Milton, Pa., Bethlehem Steel Corp. low bidder.

800 tons, grandstand addition at the American League ball park, Philadelphia; bids asked.

700 tons, Tishman office building, Forty-third street and Lexington avenue, New York; pending.

700 tons, Commercial National Bank building Peoria, Ill.; bids in. Hewett & Emerson, Peoria, architects.

600 tons, power plant at Great Falls, Mont., for the Anaconda Copper Mining Co.; pending.

560 tons, Mount Lake bridge, Seattle, Wash.; bids in June 27.

500 tons, apartment at 141 West Eighty-sixth street, New York; J. M. Felson, 1133 Broadway, architect; to be brought out for bids shortly.

500 tons, apartment at East Fifty-fourth street, for Watt Operating Co., 2 West Forty-fifth street, New York; up for figures soon.

500 tons, Stockton auditorium, Stockton, Cal.; bids in June 23.

500 tons, trestle for Hanna Furnace Co., at Leetonia, O.; pending.

400 tons, high school, Asbury Park, N. J.; pending.

400 tons, Commercial club building, San Jose, Cal.; Schrader Iron Works, low bidder.

300 tons, building for Citizens bank, Appleton, Wis.; postponed indefinitely.

300 tons, highway bridge, Chester, Vt.; bids being taken.

300 tons, Malden high school, Malden, Mass., bids opened but no award made.

225 tons, bridge at Fall River, Mass., bids in; Fay, Spofford & Thorndike, Boston engineers.

200 tons, school No. 173, New York; pending.

150 tons, Malden Spinning Co. plant addition, Malden, Mass.; bids being taken.

109 tons, shapes and bars, three bridges Siskiyou National Forest roads, bids in.

Tonnage unstated, Allen Memorial hospital, Oberlin, O.; Cass-Gilbert, New York, architects.

Plan Test Case on Trade Association Statistics

Washington, June 3.—With a view to setting up a code for trade associations in gathering statistics of shipments, sales, production and stocks, Attorney General Stone has been holding conferences preliminary to a test case in the courts. He has been in conference with James A. Emery, counsel for the National Association of Manufacturers.

Considerable thought has been given to the probability of beginning a friendly suit against some association, which supposedly is operating within the law, for the purpose of defining the proper limits to the gathering and distributing of statistics. It is apparent that the department of justice is seeking to bring about speedy action in determining the status of the associations.

Attorney General Stone has asked the National Association of Manufacturers to select a committee of attorneys to study with him the methods and possibilities of carrying on a test suit.

Shipments Hold Up

New York, June 3.—Shipments of subsidiaries of the United States Steel Corp. at present are between 36,000 and 37,000 daily. New orders are being booked at the rate of about 25,000 tons a day.

Car Buying At Low Ebb

Foreign Markets Active, Canadian National to Require 100,000 Tons of Rails—Track Accessory Demand Slackens—May Car Awards Dwindle

RAILROAD TRACK MATERIAL PRICES, PAGE 1469

New York, June 3.—Car buying is at as low an ebb as at anytime this year. Little is coming out in the way of new inquiry. Car builders generally regard the outlook over the next month or so as dull. The locomotive market is featured by an additional inquiry from the Seaboard Air Line, for 15 locomotives, bringing its list up to 25. The Detroit & Toledo Shore Line has awarded five locomotives to the Baldwin Locomotive Works.

The United States Steel Products Co. has booked an order for 5000 tons of rails for Cuba. It is learned that several lots of rails placed in the Chicago territory during the past week aggregate 10,000 tons. These include mainly requirements of the Detroit Street Railways and the St. Louis Terminal railway.

Extensions to the Canadian National railway will involve 100,000 tons of rails alone. It is expected that all of this tonnage will be placed with Canadian makers.

South African railways, it is learned here, just have placed 1000 cars with the Leeds Forge Co., Leeds, England. This order was placed in England despite the fact that German makers quoted about $154 less per car than the English makers. It is stated the reason for placing the order in England was because the Germans have been slow in making deliveries on the rail order they recently booked in South Africa.

May car awards totaling but 511, were the smallest such amount in either 1922 or 1923 and by far the lowest monthly total this year. Following is a comparison of awards for 1923 and 1924:

Car Orders

May	511
April	10,253
March	13,155
February	41,396
January, 1924	8,151
December	11,600
November	5,050
October	1,125
September	897
August	2,777
July	1,450
June	1,785
May	2,200
April	9,800
March	42,499
February	9,300
January, 1923	15,000
1923 total	102,483

Railroad Buying Moderate

Boston, June 3.—New England railroads continue to buy moderately from time to time. Sales of the past week include approximately 1000 wheels, 500 axles, 500 tons of standard rails and miscellaneous track fastenings and frog and switch material. Prices are stationary except for bolts and nuts which are weak.

Sales Continue Meager

Pittsburgh, June 3.—Light rail sales have been meager of late although one large maker reports a good aggregate shipping rate for May. Most new orders are for small amounts, single carloads ruling. The price is unchanged at 1.90c to 2.00c, base Pittsburgh.

Track accessory demand is fairly active although large purchases involving 5000 or 6000 kegs of spikes and an equivalent number of tie plates are rare. Standard spikes are quoted at 2.90c to 3.00c, small spikes at 3.25c to 3.40c, boat and barge spikes at 3.40c, tie plates at 2.50c, to 2.25c, and standard track bolts at a minimum of 3.75c.

Track Fastenings Output Cut

Chicago, June 3.—Although the railroads recently have been specifying track fastenings in fair tonnages, they apparently have not been up to the total the mills expected in view of the heavy rail placements of a few months ago. Some slowing down of production of fastenings has taken place.

The western carriers have curtailed shop and maintenance forces. The Santa Fe and the Illinois Central railroads appear to be the exceptions, the Illinois Central recently estimating the cost of its 1924 improvements at $32,000,000.

The Northern Pacific has let contracts for constructing 97 miles of railroad between Rogerson, Ida., and Wells, Nev.

Australia Orders Rails

Newcastle, N. S. W., Australia, May 22.—The bid of the Broken Hill Proprietary Co., Newcastle, on 29,367 tons of 60-pound rails and 2241 tons of fishplates has been accepted for the city of Adelaide. The bid was the lowest received and amounted to £390,000.

CAR ORDERS PENDING

Carnegie Steel Co., 50 gondola car bodies; pending.

Delaware, Lackawanna & Western, 50 suburban coaches and 10 combination suburban passenger and baggage cars; pending.

Nitrate Railways Co., 100 flat cars; bids asked.

Seaboard Air Line, 20 passenger cars; contemplated.

Official Statistics Show 1923 Steel Output

New York, June 3.—Production of steel ingots and castings in 1923 was 44,934,696 gross tons, according to a special statistical bulletin issued today by the American Iron and Steel institute. This was an increase of 9,331,770 tons, or 26.2 per cent over the output of 35,602,926 tons in 1922. Of the total production for 1923, the open-hearth method accounted for 35,899,657 tons, as against 29,308,983 tons in the preceding year.

Finished iron and steel production in 1923 totaled 33,277,076 gross tons, compared with 26,452,004 tons in 1922, or an increase of 25.8 per cent. The production of tin and terne plate in 1923 aggregated 3,375,369,749 pounds. In 1922 it was 2,884,382,227 pounds. Galvanized sheet production in 1923 was 2,530,603,954 pounds, compared with 2,275,704,463 pounds in 1922. The output of wrought pipe and tubes in 1923 was 3,351,023 gross tons, against 2,732,236 tons in 1922.

The Nonferrous Metals

Prices Stronger, Especially in Copper and Lead—Zinc Eases After Rise—Tin Fluctuates

	Copper Electro delivered	Copper Lake delivered	Spot tin Straits New York	†Lead New York basis	Zinc St. Louis basis	Spot† aluminum	Spot antimony	Spot nickel
May 28	12.75	13.00	42.00	7.00	5.82½	27.00	8.50	28.00
May 29	12.80	13.00	40.75	7.00	5.82½	27.00	8.50	28.00
May 30	Holiday.							
June 2	12.87½	13.00	40.87½	7.12½	5.80	27.00	8.50	28.00
June 3	12.87½	13.00	41.12½	7.12½	5.77½	27.00	8.50	28.00

†Outside market quotation.

NEW YORK, June 3.—The London metal markets made a rally last week. The rise was viewed with skepticism at first by the American trade because London has made many false starts. With the continuance of the recovery abroad in most metals the American markets took heart and advanced accordingly.

Foreign inquiry for zinc appeared in some volume, though bid prices were somewhat too low in view of the rise in prices here. Today the domestic market eased though London was firm. Little business is going and the market is 5.77½c to 5.80c, E. St. Louis.

France, Great Britain and Germany inquired more actively for copper last week and New York dealers then advanced their bid prices. On Monday a good domestic business was done so that today the market was higher at 12.87½c delivered for prompt and July. Good business also was done last Wednesday. Public utility concerns are said to be especially interested in copper just now but brass and copper rolled products are comparatively quiet with prices unchanged.

Prices of lead are stronger here both on account of the domestic situation and the market in London. On New York basis lead is 7.12½c and on St. Louis base 6.87½c. Buying is for prompt shipment.

Tin made a substantial recovery last week and since then has been swinging back and forth.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
Copper, hot rolled, 4 oz., min..	20.25
High brass	16.75
Zinc, ga. 9 to 18 (plates ½c less)	9.50
Lead, full sheets (cut ¼c more)	11.25
Aluminum, bright, 0 to 35 gage..	37.50 to 92.00
SEAMLESS TUBES	
High brass	21.00
Copper	22.25
RODS	
High brass, round, ⅜ to 2½-inch	14.50
Naval brass rods	17.25
WIRE	
Copper	15.125 to 15.375
High brass	17.25

Old Metals

Dealers' buying prices cents per pound

HEAVY RED BRASS	
Cleveland	8.75
New York	8.00 to 8.25
Chicago	8.50
HEAVY YELLOW BRASS	
New York	6.00 to 6.25
Chicago	6.50
Cleveland	5.75 to 6.00
ZINC	
New York	3.75 to 4.00
Cleveland	3.00 to 3.25
Chicago, dross	4.25
HEAVY COPPER AND WIRE	
Cleveland	9.75 to 10.00
New York	10.00 to 10.25
Chicago	10.00
RED BRASS TURNINGS	
New York	7.50 to 7.75
Cleveland	7.00 to 7.50
Chicago	8.00
YELLOW BRASS TUBING	
Cleveland	6.50
NO. 1 BRASS ROD TURNINGS	
Cleveland	6.00
New York	6.50 to 6.75
Chicago	6.25
ALUMINUM BORINGS	
Cleveland	10.00

Distillate Prices

Stronger as Production Drops—Sulphate Market Dull—Phenol Higher

New York, June 3.—Continued curtailment in production, with improved demand for motor fuel, is giving a stronger tone to the market on light oil distillates. Prices are unchanged, but in some quarters an increase is expected within the next two or three weeks. The reduction in output reflects the falling off in operations at the steel mills.

Pure benzol may be quoted at 24 to 25 cents, works, in tanks and 30 cents in drums; 90 per cent, 22 to 23 cents, works, in tanks and 28 cents in drums; xylol, 28 cents, works, in tanks and 33 cents in drums; toluol, 26 cents in tanks and 30 cents in drums, and solvent naphtha, 25 cents in tanks and 32 cents in drums.

Sulphate of ammonia appears as dull for this season as in any year in the history of the trade. Sellers believe there is little prospect of improvement before the end of next month. Prices are nominally unchanged at $2.60 to $2.65, works, on material for domestic account and $2.60 to $2.65, port, in double bags for foreign account. Spot demand for phenol is slightly more active and this with a scarcity of supplies has forced the market up to 29 cents, local warehouses. The situation in futures, however, is virtually unchanged at 25 cents, works. The market on naphthalene is also unchanged at 5½ cents works for flakes and 6½ cents for balls.

Little Change In Scrap

(*Concluded from Page* 1470)

still are out of the market. Prices on lighter grades are advanced 50 cents a ton here with dealers, but the advance is due to operations between dealers rather than to a condition based on consumption. Producers in this vicinity are slowing up somewhat. Dealers say they are finding it more difficult to execute orders for this reason. The month closed with producers' supplies all taken and some of the latter report fair prices on their scrap. Bids for next month's supply are being prepared and it is believed little change will be made in prices.

Falling Prices Halted

Boston, June 3.—Despite meager sales of iron and steel scrap prices hold firm, an indication of strength after the long period of decline. Several cars of heavy melting steel have sold at $10.50, shipping point. Blast furnace borings and turnings enjoyed some activity toward the end of May, but are dull with the price firm at $7, shipping point. Total sales of the week are probably under 500 tons. No. 1 machinery ranges between $20 and $21 delivered and No. 2 machinery is a drug on the market at $17 delivered.

Market Remains Quiet

Birmingham, Ala., June 2.—Little buying is being done in the iron and steel scrap market. Quotations are weak. Dealers are watching their stocks, buying in about the same volume as shipments. Turnings and borings are especially low. No. 1 cast, stove plate and steel rails are finding the better demand.

Dealers Only Buyers

Cincinnati, June 3.—Iron and steel scrap continues almost exclusively a dealers' proposition. Buying by mills is in slight volume and on a hand-to-mouth basis. Relatively the most active grades are those suitable for foundry use, but these are moving in a limited way. Owing to lack of business, prices are nominal. Yard stocks are heavy, in excess of 50,000 tons. Yardmen have been purchasing heavily of railroad offerings and present yard supply will be greatly increased. Dealers say that they are experiencing difficulty in finding buyers for heavy melting steel at $11, Cincinnati.

St. Louis Continues Dull

St. Louis, June 2—While dealers' quotations show no specific changes, the trend of scrap iron and steel prices again is easier. The industries are buying only small lots for immediate use. Dealers show less disposition to accumulate and buy only when bargians are involved.

About the only material showing any signs of life are cast grades, particularly for gray iron castings. Prices on these are holding relatively steady. Rolling mill grades and steel specialties are dull, but the latter are holding firm because some dealers are short and are endeavoring to pick up tonnages to apply on contracts. Rails for rolling are inactive, the leading consumer being well provided for the next few months. Some material suitable for blast furnaces continues to move, but at depressed prices.

Despite the lack of demand and market weakness, railroads continue to offer scrap. Lists included the Missouri Pacific, 4500 tons; Belt Railway of Chicago, 1000 tons; Chicago & Alton, 900 tons. Pennsylvania system, 32,000 tons; Chicago, Milwaukee & St. Paul, 1800 tons, Santa Fe, 4000 tons, and an open list by the Big Four.

Tax Law Disappoints

But Some Provisions More Favorable To Business Than Expected

Washington, June 3.—While the 1924 revenue bill has been signed by President Coolidge, the President has pointed out defects in it that he says must be corrected at some future date. The bill comprises modified forms of the Democratic, insurgent and Republican views on taxation, and is unsatisfactory from many viewpoints of business and industry. However, it is the best that could be expected in a Presidential campaign year and with the present political complexion of congress. The President intimates that political expediency dominated the tax measure rather than soundness from an economic viewpoint.

It should be a matter of congratulation to industry that congress, when dealing with certain of the less spectacular phases of the measure, has been governed by a spirit of justice which has even led to correct some errors in the designedly nonpolitical proposals of the treasury department, the National Lumber Manufacturers' association in a recent statement pointed out. It is not too much to say that some of the provisions of the bill that are of special interest and concern to the natural resources industries and others are superior measures passed since the time of the income tax feature of taxation.

Chairman Green, of the house ways and means committee, has indicated that the board of tax appeals provision may require changes within two years. Under the bill as passed all appeals from rulings of the commissioner of internal revenue go to the board of tax appeals and all proceedings before this board must be open to the public. No record of what transpires before the board need be kept when the amount involved is less than $10,000, but in cases affecting larger sums the proceedings must be taken down and formal opinions must be given by the presiding officials. Copies of the record of the proceedings and of the opinions given may be obtained by anyone from the government printing office.

The publicity clause in the present tax measure is considered a mischief-making provision despite the elimination of the Norris amendment, which was voted down in the conference committee, and which provided that all information contained in income tax returns of individuals and corporations should be made public.

When the conferees agreed to eliminate the Norris amendment, providing complete publicity of income tax returns, and the McKellar amendment providing complete publicity in refund and abatement proceedings, they agreed, apparently by way of a sop for the advocates of publicity on the provision, that the amount of tax paid should be made public.

That was in addition to the provision that the ways and means committee of the house, the finance committee of the senate and special committees in either branch should have confidential access to income tax returns.

Publication of the tax, embarrassing though it would be to many individuals and corporations through indication of net income, would not reveal the deductions and claims for exemptions made by the taxpayer in making his return to the government.

As to corporations, it is pointed out that the clause may bear with particular severity upon some of the smaller ones. The larger corporations whose stock is on the market already put out comprehensive statements of financial conditions as a matter of necessity.

Canada Sets Record in April Production

Toronto, Ont., June 3.—Production of pig iron and ferroalloys in Canada in April set a new record for the year with a total of 86,795 tons, of which 83,875 tons was pig iron, a gain of 8 per cent over March. Foundry iron was 44 per cent less than March with 15,855 tons. In the first four months total production was 285,155 tons, the largest since 1919. In the same period last year production was 234,000 tons. Seven furnaces were in blast at the end of the year.

Steel ingot and castings production advanced to 104,162 tons, 9.7 per cent over March. All but 60 tons of alloy ingots were basic steel for use of the producers in steel plants. April steel castings production totaled 3838 tons, slightly under March. Of this total 94 per cent were for direct sale.

To Report on Refractories

The regular quarterly meeting of the Refractories Manufacturers' association will be held at the Traymore hotel, Atlantic City, June 23-24. On the afternoon of the latter date the organization's committee on industrial survey will hold a meeting, possibly at the Hotel Chalfonte, to report progress in the matter of service classification which eventually will classify each refractory made so that at a glance it will be known for just what purpose that brick is suited in regard to temperature, spalling, slag, load and abrasion. This committee is co-operating with the American Society for Testing Materials to bring about this service feature for the brick purchasers.

Iowan Named

Member of Trade Commission—May Except Pittsburgh Case Decision

Washington, June 3.—Filing of its brief with the federal trade commission on June 9 by the United States Steel Corp. in the complaint of the commission against the Steel corporation and its subsidiaries concerning the Pittsburgh plus method of basing steel prices is awaited with interest here, as attorneys for both sides are preparing their final arguments to be given before the commission in the last week of June.

Confirmation by the senate of the appointment of Charles W. Hunt, Iowa farm leader and head of the farm bureau of that state, as a member of the commission, may swing the final vote of the commission against the Steel corporation and result in a cease and desist order against Pittsburgh plus. Mr. Hunt's name was sent to the senate last Tuesday by President Coolidge. The appointment of a farm representative to a place on the commission was not unexpected as considerable pressure from farm organizations and others had developed.

Attorney H. G. Pickering, representing the Middle Western states, an organization opposing the Pittsburgh plus, and an intervener in the case, has filed a three-volume brief with the commission. The association includes members from Illinois, Iowa, Minnesota and Wisconsin. The brief states:

"The proper method of approach, and the method which we ask the commission to employ, is to start at the other end of the road, namely, to assume a condition of free competition and all of the elements that are involved in such a condition; to develop that assumption down to the situation at the various delivery points and to determine whether such normal prices check with the prices prevailing under the Pittsburgh plus system, or whether they would be different."

The brief declares that the Pittsburgh plus practice is not a normal outgrowth of competition because "it is established historically that it did not exist when the production of steel outside of Pittsburgh was negligible, but only came into being after the development of steel centers other than Pittsburgh through the agreement of steel producers to eliminate competition by adherence to the practice."

It is asserted also in the brief that the iron and steel trade journal market accounts, which have been placed in the record show "an accurate chronological account of the steel industry, of steel prices and of the Pittsburgh plus practice."

Illinois Copper & Iron Mfg. Co., Inc., Chicago, has increased its capital stock from $5000 to $15,000.

Pig Iron Output Decline Severe

May Production Drops to 2,631,248 Gross Tons—Slump Among Greatest in History—Active Furnaces Reduced From 234 On April 30 to 188 On May 31—81 Stacks Out in Two Months

AS A result of further drastic curtailment during May, production of coke and anthracite pig iron declined to 2,631,248 gross tons, the lowest in 18 months, or since October, 1922. Compared with the output of 3,226,107 tons in April, the May total shows a loss of 594,859 tons, or 18.4 per cent. With the exception of the 616,366-ton drop of October, 1919, during the steel strike, the May decline was the greatest in recent history. Active blast furnaces fell from the 234 operating on April 30 to 188 on May 31. This total number of stacks is the lowest since August, 1922, when 143 were producing iron. The reduction in the number of stacks in May was the largest in any single month since March, 1921, when 52 were blown out or banked. During the last two months active stacks have declined 81, a drop equal to the decline of February and March, 1921, from 184 to 103.

On an average daily basis the May production of 2,631,248 tons was at the rate of 84,879 tons, a decline of 22,658 tons from the 107,537 tons of April, or 21 per cent. This rate is the lowest since October, 1922, when production was 84,827 tons per day. It is interesting to note that the decline in daily production was the greatest in history, being 108 tons greater than the 22,550-ton drop of October, 1919, when the steel strike forced curtailment.

Merchant iron made in May totaled 659,221 tons, registering a loss of 48,930 tons from the 708,151-ton output of April. Reduced to an average daily basis, this represented 21,265 tons per day and a loss of 2340 tons from the 23,605 tons per day in April. Nonmerchant or steelworks iron in May totaled 1,972,027 tons, or a drop of 545,929 tons from the 2,517,956 tons of the preceding month. On an average daily basis, the May output was at a rate of 63,614 tons per day, or 20,318 tons less than the 83,932-ton daily output of April.

Blast furnaces operating on May 31 totaled 188, a loss of 46 from the 234 active on April 30. During the month one merchant stack was blown in and nine blown out or banked, the net loss being eight furnaces. Of the steelworks class, three were blown in and 41 removed from blast, the net loss for this class amounting to 38 furnaces.

Stacks blown in during May were: In Ohio: Lorain No. 3, National Tube Co, In Alabama: Hattie Ensley No. 2, Sloss-Sheffield Steel & Iron Co. In Utah: Ironton, Columbia Steel Corp. In Colorado: One Minnequa, Colorado Fuel & Iron Co.

Among the stacks blown out during the month were: In Ohio: Lorain No. 2, National Tube Co.; Anna, Struthers Furnace Co.; Trumbull-Cliffs, Trumbull-Cliffs Furnace Co.; one Steubenville and Portsmouth, Wheeling Steel Corp.; one Haselton, Republic Iron & Steel Co.; Central C, American Steel & Wire Co.; three Ohio and two Mingo, Carnegie Steel Co.; Etna, Marting Iron & Steel Co.; Youngstown No. 1 and two East Youngstown, Youngstown Sheet & Tube Co. In Pennsylvania: Colonial, Colonial Iron Co.; Punxy, Punxsutawney Furnace Co.; Stewart, Stewart Furnace Co.; Schoenberger No. 1 and Donora No. 1, American Steel & Wire Co.; four Edgar Thomson, three Duquesne, one Clairton, two New Castle and one Farrell, Carnegie Steel Co.; Bethlehem E. one Steelton and Cambria L. Bethlehem Steel Co.; Shenango No. 3, Shenango Furnace Co. In Maryland: Maryland D, Bethlehem Steel Co. In New York: Harriet X, Wickwire Spencer Steel Corp. In New Jersey: Wharton A, Replogle Steel Co. In Colorado: One Minnequa, Colorado Fuel & Iron Co. In Virginia: Crozier, Virginia Iron, Coal & Coke Co. In Illinois: Federal A, By-Product Coke Corp.; South Works Nos. 1 and 6 and Joliet No. 3, Illinois Steel Co. In Indiana: Four Gary, Illinois Steel Co. In Minnesota: Duluth No. 2, Minnesota Steel Co.

MONTHLY PRODUCTION

	1924	1923	1922
January	3,015,480	3,228,226	1,645,804
February	3,073,619	2,993,918	1,630,180
March	3,465,389	3,523,595	2,035,908
April	3,226,107	3,546,308	2,070,161
May	2,631,248	3,868,486	2,309,348
June	.....	3,667,868	2,362,455
Total 1st half	15,411,843	20,828,401	12,053,856
July	.....	3,684,677	2,403,030
August	.....	3,448,886	1,810,665
September	.....	3,117,526	2,024,008
October	.....	3,142,642	2,629,655
November	.....	2,891,191	2,846,110
December	.....	2,912,527	3,083,520
Total 2nd half	.....	19,197,449	14,796,988
Grand total	15,411,843	40,025,850	26,850,844

AVERAGE DAILY PRODUCTION

	1924	1923	1922	1921	1920
Jan.	97,273	104,136	53,090	77,895	97,172
Feb.	105,987	106,925	58,220	68,906	102,904
Mar.	111,787	113,664	65,674	51,447	108,895
April	107,537	118,210	69,005	39,691	91,754
May	84,879	124,790	74,495	39,202	96,510
June	.....	122,262	78,748	35,466	101,553
July	.....	118,860	77,517	27,892	98,190
Aug.	.....	111,254	58,408	30,802	101,468
Sept.	.....	103,917	67,466	32,859	104,143
Oct.	.....	101,375	84,827	39,821	106,075
Nov.	.....	96,373	94,870	47,165	97,836
Dec.	.....	93,952	99,468	52,992	87,105
Ave.	101,393	109,659	73,563	45,223	99,456

DIVISIONS OF PRODUCTION

1923	Merchant	Non-merchant	Spiegel	Ferromanganese	Other ferro
Jan.	713,186	2,515,040	12,056	19,358	952
Feb.	708,901	2,285,017	3,657	21,410	759
Mar.	767,219	2,756,376	13,832	20,730	236
April	795,558	2,750,750	7,440	20,810	670
May	909,726	2,958,760	9,533	19,568	892
June	899,102	2,768,766	18,184	19,717	874
July	900,496	2,784,181	12,876	26,493	776
Aug.	828,163	2,620,723	5,595	22,044	1,800
Sept.	734,754	2,382,772	4,478	23,206	1,860
Oct.	724,596	2,418,046	8,442	16,039	1,858
Nov.	726,686	2,164,505	16,783	14,839	3,259
Dec.	740,624	2,171,903	10,272	18,236	1,717
Tot'l 1924	9,449,011	30,576,839	123,148	242,450	15,653
Jan.	707,710	2,307,770	7,948	19,735	...
Feb.	679,700	2,393,919	9,870	22,262	...
Mar.	712,321	2,753,068	13,794	22,350	...
Apr.	708,151	2,517,956	4,240	23,580	163
May	659,221	1,972,027	9,336	21,663	763

MAY PIG IRON

	No. of stacks	No. in blast last day of month: May	April	—Total tonnage made— Merchant	Nonmerchant	—Total— May	Apr.
Pennsylvania	144	67	87	141,608	749,443	891,051	1,117,089
Ohio	78	37	52	136,274	472,677	608,951	787,641
Alabama	42	25	24	129,127	118,076	247,203	230,544
Virginia	19	1	2	7,437	.....	7,437	6,987
New York	27	12	14	92,324	56,325	148,649	200,920
New Jersey	4	0	1	.....	.....	.....	12,545
Illinois	26	12	15	68,335	139,490	207,825	308,875
Colorado	5	3	3				
Indiana	16	12	16	20,610	302,265	322,875	383,419
Maryland	6	3	4				
Wisconsin	6	1	1				
Kentucky	7	1	1				
West Virginia	5	4	4	11,708	70,304	82,012	71,418
Tennessee	14	3	3				
Utah	1	1	0				
Georgia	2	0	0				
Texas	1	0	0				
Minnesota	3	1	2	41,517	41,966	83,483	78,686
Michigan	4	4	4				
Missouri	1	1	1				
Spiegel and ferro—all states	..	..	..	10,281	21,481	31,762	27,983
Totals	411	188	234	659,221	1,972,027	2,631,248	3,226,107

Americans Buying British Iron

More Orders Placed for West Coast Hematite, as Market Shows Weakness—English Mills Make Heavy Purchases of Billets on Continent—Ruhr Plants Offer Distress Prices—Tin Plate Inquiries Pick Up

Iron Trade Review Staff Cable

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, June 3.—The general situation in the British iron and steel market is weak, pig iron prices being shaded at least 1 shilling. American consumers continue to place orders for West Coast hematite.

British rerolling mills have made heavy purchases of billets on the Continent. French reports state that export sales generally have increased. French and Belgian prices are close.

Good inquiries have been received from China and India for tin plate, in which competition is active. Prices as low as £1 3s ($5.40) have been quoted.

German reports state the miners' strike in the Ruhr is not expected to last long. A considerable tonnage of steel is offered at distress prices to get cash, by those manufacturers who are in financial difficulties.

Japan Steel Market Staggering Under Heavy Load

Foreign Special Service

TOKIO, Japan, May 7.—The Japanese government has started laying out new parks, roads and canals in Tokio. The plans of most bridges in Tokio and Yokohama have been finished. Beginning reconstruction of the capital and port towns is more imminent. It is almost formally decided to engage American engineers experienced in building bridges. The building industry has its worst days since the quake and fire in Tokio. Now that quake-damaged plants have been nearly repaired machine shops and engineering works lack new orders.

In these circumstances the pig iron

(*Concluded on Page* 1488)

Current Iron and Steel Prices of Europe

Prices Converted into Dollars at Rates of Exchange, June 2

	British Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgian and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Ports	
Export Prices f. o. b. Ship at Port of Despatch—By Cable	£ s d			Francs		Francs	£ s d	
PIG IRON								
Foundry No. 3, Silicon 2.50-3.00	$19.76	4 11 6*	$19.38	380	$17.76	400	$22.68	5 5 0
Basic	19.87	4 12 0	19.89	390	18.20	410	23.76	5 10 0
Basic-bessemer	21.60	5 0 0†	19.38	380	17.32	390	22.68	5 5 0
Hematite, Phosphorus 0.02-0.05	21.28	4 18 6	22.95	450	.....	....	24.84	5 15 0
SEMIFINISHED STEEL								
Billets	$32.40	7 10 0	$23.97	470	$23.98	540	$26.46	6 2 6
Wire rods	47.52	11 0 0	35.70	700	33.30	750	36.72	8 10 0
FINISHED STEEL								
Standard rails	$36.72	8 10 0	$29.33	575	$30.19	680	$34.56	8 0 0
Merchant bars	1.69c	8 15 0	1.29c	560	1.26c	625	1.40c	7 2 6
Structural shapes	1.61c	8 7 6	1.27c	550	1.21c	600	1.37c	7 0 0
Plates, ship, bridge and tank	1.74c	9 0 0	1.62c	700	1.46c	725	1.52c	7 15 0
Sheets, black, 24 gage	2.51c	13 0 0	2.66c	1,150	2.51c	1,250	2.84c	14 10 0
Sheets, galvanized, 24 gage, corrugated	3.25c	16 17 6	4.04c	1,750	4.92c	2,450	3.53c	18 0 0
Bands and strips	2.12c	11 0 0	1.91c	825	1.91c	950	1.86c	9 10 0
Plain wire, base	2.70c	14 0 0	2.31c	1,000	2.16c	1,075	2.06c	10 10 0
Galvanized wire, base	3.28c	17 0 0	3.00c	1,300	2.71c	1,350	2.94c	15 0 0
Wire nails, base	2.80c	14 10 0	2.43c	1,050	2.46c	1,225	2.74c	14 0 0
Tin plate, base box 108 pounds	$5.08	1 3 6	.....	....	.....	....	$6.37	1 9 0
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.76	4 11 6	$19.64	385 (2)	$17.54	395	$23.56	99
Basic pig iron	20.52	4 15 0	19.64	385 (1)	17.76	400	23.56	99
Furnace coke	5.40	1 5 0	7.24	142	8.44	190	7.62	32
Billets	32.40	7 10 0	24.74	485	23.75	535	29.75	125
Standard rails	1.74c	9 0 0	1.36c	590	1.56c	775	1.53c	142
Merchant bars	1.74c	9 0 0	1.36c	590	1.20c	600	1.56c	145
Shapes	1.83c	9 10 0	1.32c	570	1.19c	590	1.56c	145
Plates, ship, bridge and tank	1.83c	9 10 0	1.62c	700	1.41c	700	1.67c	155
Sheets, black, 24 gage	2.60c	13 10 0	2.66c	1,150	2.56c	1,275	2.58c	240
Sheets, galvanized 24 gage, corrugated	3.25c	16 17 6	4.27c	1,850	4.92c	2,450	3.76c	350
Plain wire	2.70c	14 0 0	2.31c	1,000	2.16c	1,075	2.15c	200
Bands and Strips	2.31c	12 0 0	1.91c	825	2.01c	1,000	2.10c	195

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £1 4s 0d ($5.18) f. o. b. Ferromanganese, £17 0s 0d ($73.44) f. o. b. The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

See St. Louis as Steel Center

Possibilities of Upbuilding a Great Industry on the Mississippi with Illinois Coal. Local, Lake and Alabama Ores and Expansive Southwestern Market Are Considered at Notable Dinner of Business Executives

ST. LOUIS as a future iron and steel center was the general theme advanced and discussed at a special dinner for that purpose at the Jefferson hotel, Tuesday evening, May 27, tendered by Festus J. Wade, president of the Mercantile Trust Co., St. Louis and a foremost figure in the financial world of the Southwest. Honor guests on that occasion were John A. Penton, chairman of the Penton Publishing Co., A. O. Backert, president of the Penton Publishing Co. and C. J. Stark, vice president of the Penton Publishing Co. and editor of IRON TRADE REVIEW.

The dinner was probably the most notable in a business sense in the history of St. Louis and was thoroughly representative of the leadership of that city in all fields. The 300 guests in attendance included practically all the ranking executives in the industrial, financial, transportation and mercantile life of St. Louis and vicinity, national public figures, various heads of railroad systems of the West and Southwest and other men of prominence. A number were present from New York, Chicago, Cleveland and other cities.

Mr. Wade, who acted as toastmaster, opened the dinner with the statement he had nothing to sell except "the prosperity and the future development of the city that for more than 60 years has been my friend".

Harry Scullin, president of the Scullin Steel Co., St. Louis, in an eloquent address that stirred his audience to enthusiasm, drew a brilliant picture of the possibilities of the future development of St. Louis as a steel center. Mr. Scullin stated he based his prophecy upon a calm and concise analysis of the underlying factors as a business man. He said the fundamentals of the steel industry, ability to obtain and assemble raw materials cheaply; a large market; and adequate and suitable labor supply, all were to be amply found in the case of St. Louis. He referred to St. Louis as an "island of industry surrounded by natural resources." The fuel is available through the bituminous coal fields of Illinois where he said metallurgical coke now is being produced which is equal to any in the United States. As to the ore, Mr. Scullin pointed out Missouri is honeycombed with deposits prominent among which are the Iron Mountain workings 100 miles south of St. Louis which again are being operated after an inactivity of many years. Furthermore, he said 400 miles down the Mississippi are located the rich deposits of the Racoon and Black Creek districts of Northern Alabama which recently have been explored and are said to represent tremendous resources of iron ore and coking coal. Ore from these deposts in northern Alabama can be laid down in St. Louis at a cost of $6 to $8 per ton of pig iron below that of Pittsburgh, he stated.

New Works Planned

COINCIDENT with the dinner given to crystallize St. Louis' possibilities as a coming iron and steel center, further announcement was made of the plans of extension of the St. Louis Coke & Iron Co. and affiliated interests. As previously announced, a second 500-ton blast furnace is to be built in connection with the present plant at Granite City consisting of a single stack and 80 Roberts by-product ovens. It is indicated also that plans are shaping up for the ultimate erection of a steel plant. When this latter part of the program is carried out, it is indicated that the first finishing capacity will be a tube mill.

Interesting information as to the results of the past three years in the coking of Illinois coal and of the revival of the pig iron industry of St. Louis was given by W. G. Maguire, president of the St. Louis Coke & Iron Co., who responded to the topic "Making Coke of Illinois Coal". A liberal portion of Mr. Maguire's address is given in connection with this article.

Mr. Penton spoke on "A New Day In Industry". He traced the growth of the American iron and steel industry to its present great proportions, pointing out how the per capita consumption had steadily increased until today by a wide margin it is the greatest of any country in the world. Mr. Penton expressed the belief that any fear of ruinous competition in the world's iron and steel markets from a rehabilitated Europe was not well founded because he believed the under-consumption of the world and Europe's own starved requirements would largely absorb this increase of production.

W. A. Colston, vice president of the New York, Chicago & St. Louis railway, spoke on "How the Development of the Steel and Iron Industry of St. Louis Benefits the Railroad". He declared that any great development in American industry such as the upbuilding of St. Louis in an iron and steel way would prove of benefit to the railroads regardless of whether they tapped the particular territory affected.

The dependence of the individual and of the world at large upon steel for present day advancement and modes of living was pointed out by Mr. Stark. The speaker stated that a nation ranked in the scale of progress and civilization in proportion to its consumption of steel and that the United States was far in advance of all other countries in its per unit requirements of steel. It has been the home market of this country especially that has made its steel industry great. St. Louis stands at the farthest western edge of the densest steel consuming area of the country or that represented by the greatest industrial concentration but it is supplying today not more than 2 per cent of the tonnage so absorbed. Mr. Stark explained that the steel industry still is in its adolescent stage.

The dominating influence of fuel in determining the location and development of the iron and steel industry of this country was emphasized by Mr. Backert in his address "Transition of American Steel Industry". Mr. Backert showed historically how first charcoal followed in turn by anthracite coal, coke from bituminous coal, first by the beehive process and now by the by-product, had outranked all other factors. In practically all cases, the ore had been brought to meet the fuel. He stressed the importance of scrap as a raw material for steel manufacture and pointed out that St. Louis is one of the largest scrap producing and handling points in the country, shipping out much of this tonnage to Chicago, Pittsburgh and other steel districts. He emphasized the importance that St. Louis already had attained in steel manufacture in that it is the largest producer of steel castings in the world

and possesses the largest plant of this character in the world. Mr. Backert told how the trend of the iron and steel industry as well of general manufacturing and of population is steadily westward and in a relatively few years is promised to be at or near St. Louis.

United States Senator Robert L. Owen of Oklahoma complimented St. Louis upon its financial and industrial growth. "St. Louis with its conservatism has built up a powerful industrial and financial system and St. Louis with its conversatism and vision can become a great steel center," he said. He was told recently by an oil operator at Tulsa that $65,000,000 was expended in that territory last year for steel supplies and there is no good reason why St. Louis should not furnish Oklahoma and the Southwest with the steel pipe and other products needed in the oil industry. "Even if the Pittsburgh plus system is abolished which seems likely", said Senator Owen, "St. Louis need not suffer because you still will have the freight advantage to your great market".

Describes Alabama Deposits

D. E. Mitchell, geologist of Lebanon, Tenn., and former president of Cumberland university, told of the work of exploration of the coal and ore deposits in the Racoon Mountains and Black Creek districts of northern Alabama which recently have been carried out by the Deepwater Coal & Iron Corp., a corporation of New York, Chicago and St. Louis capitalists specially organized for that purpose. Mr. Mitchell said that hundreds of drillings had been made on the property and that it had been examined by 31 leading engineers of the country. He declared that these tests had tended to indicate that this territory embraced the greatest natural basin of ore and high grade coking coal yet discovered in the world.

During the day the visiting guests were accorded an apportunity to observe the rapid industrial development of St. Louis. As guests of President Henry Miller of the Terminal Railway association of St. Louis, a trip by private car was made over the Terminal lines which connect with all the 28 railroads running into St. Louis.

Those Who Attended St. Louis Steel Dinner

Abt, Paul S., first vice president, the Southern Illinois National bank, East St. Louis, Ill.
Akin, Thos. R., president and treasurer, Laclede Steel Co.
Allen, W. L., president, Kansas City Bolt & Nut Co., Kansas City, Mo.
Aloe, L. P., president, A. S. Aloe Co.
Alt, Louis, postmaster.
Anderson, L. E., L. E. Anderson & Co.
Anderson, Oliver J., L. E. Anderson & Co.
Attebery, Olin M., deputy governor Federal Reserve bank.
Augustine, Floyd, president, Augustine & Co.
Bachelder, J. E., manager, Fairbanks-Morse & Co.
Backert, A. O., president, Penton Publishing Co., Cleveland.
Baer, Carl J., Standard Unit Navigation Co.
Bagnell, Robert A., secretary, Mississippi Valley Iron Co.
Baldwin, L. W., president, Missouri Pacific Railroad Co.
Barnes, Arthur F., vice president, Mercantile Trust Co.
Barrows, O. B., sales agent, American Steel & Wire Co.
Beardslee, Frank D., manager department public relations, Mercantile Trust Co.
Beavers, L. L., president, St. Louis Joint Stock Land Bank.
Bennett, Tom W., president, Bennett Mortgage Co.
Bergs, J. B., Sheridan Packers Co.
Bernet, John J., president, New York, Chicago & St. Louis railroad, Cleveland.
Bestor, H. Paul, president, Federal Land bank.
Biggs, Hon. D. C., governor, Federal Reserve bank.
Bixby, Harold McM., vice president, State National bank.
Bixby, W. H., G. H. Walker & Co.
Black, E. L., assistant secretary, Mercantile Trust Co.
Blanton, D. A., president Blanton Co.
Block, Harry L., president, Missouri Portland Cement Co.
Boeckeler, Adolphus, vice president, Boeckeler Lumber Co.
Boeger, Louis, president, North St. Louis Trust Co.
Boehne, John W., director, Federal Reserve bank, Evansville, Ind.
Bogue, John H., real estate officer, Mercantile Trust Co.
Booch, Leo. H., vice president and manager, Bridge & Beach Mfg. Co.
Brown, Baxter L., civil engineer.
Brown, Paul, Paul Brown & Co.
Brown, Paul W., editor *America at Work*.
Buder, Edward, vice president and treasurer, Mercantile Trust Co.
Buder, Oscar E., vice president *St. Louis Times*.
Bunn, Paul V., general secretary, chamber of commerce.
Busch, August A., president, Busch Sulzer Bros. Diesel Engine Co.
Calhoun, D. R. Jr., Ely & Walker Dry Goods Co.
Calkins, H. G., engineer.
Carleton, Murray, president, Carleton Dry Goods Co.
Cannon, B. B., regional director, Glidden Co.
Carpenter, A. C., manager, Bemis Bro. Bag Co.
Carter, Emmet T., Carter, Nortoni & Jones.
Carter, Henry, president, Savings Trust Co.
Carter, L. Ray, president Carter Commission Co.
Carter, W. F., Carter, Nortoni & Jones.
Chamberlin, George E., president Engineers' Club of St. Louis.
Chandler, Warren, L. E. Anderson & Co.
Chapman, William, sales agent, Bethlehem Steel Co.
Childress, L. Wade, president, Columbia Terminals Co.
Clark, Charles McL., Clark & Co.
Clarkson, G. W., president, Grand avenue bank.
Clarkson, W. Palmer, president, chamber of commerce.
Colnon, R. S., president and treasurer, Fruin-Colnon Contracting Co.
Colston, W. A., vice president, New York, Chicago & St. Louis railroad, Cleveland.
Compton, William R., president American Trust Co.
Conant, S. D., department manager, Sligo Iron Store Co.
Conrades, E. H., president, St. Louis, Troy & Eastern Railroad Co.
Conway, Robert E., Coronado hotel.
Copeland, W. M., branch manager, General Fireproofing Co.
Cotterall, W. F., accountant, Fisher Body St. Louis Co.
Coyle, Philip W., commissioner traffic bureau, chamber of commerce.
Culver, Betram B., president, Wrought Iron Range Co.
Davis, Albert J., president, Merchants & Manufacturers' association.
Davis, G. L. L., vice president, Scullin Steel Co.
Davis, J. L., chairman of board, Security National Bank Savings & Trust Co.
Davis, S. C.
Dean, W. B., G. H. Walker & Co.
Desloge, F. V., vice president, Desloge Consolidated Lead Co.
Doyle, N. A., vice president, American Car & Foundry Co.
Drew, Francis, department manager, Ferguson-McKinney Mfg. Co.
Duncan, Guilford, president, Ludlow-Saylor Wire Co.
Duncan, John, chairman, Mt. Olive & Staunton Coal Co.
Edwards, B. F., president, National City bank.
Edwards, Wm. J., president Union Electric Light & Power Co.
Einstein, R. E., secretary and treasurer, St. Louis Frog & Switch Co.
Farish, John H., John H. Farish & Co.
Farrell, J. J., secretary, Mercantile Trust Co.
Feldman, Hyman, purchasing agent, Mercantile Trust Co.
Fisher, E. C., sales manager, American Locomotive Co.
Ford, James L. Jr., president Franklin bank.
Forgan, D. M., manager, American Radiator Co.
Fox, C. B., general manager, Aluminum Co. of America, East St. Louis, Ill.
Francis, Hon. D. R., Francis, Bro. & Co.
Francis, J. D. P., Francis, Bro. & Co.
Fulton, Dr. Charles H., president, Rolla School of Mines, Rolla, Mo.
Gamble, Allan, secretary-treasurer, Gamble Construction Co.
Gardner, Hon. Frederick D., president, St. Louis Coffin Co.
Garesche, A. A., attorney.
Gengenbach, Edgar, sales manager, Scruggs, Vandervoort & Barney.
Gilbert, Charles, president, New Staunton Coal Co.
Glass, Frank P., editorial director, *St. Louis Star*
Goble, A. S., manager, Baldwin Locomotive Co.
Goddard, Warren, president, Goddard Grocery Works.
Goltra, Edward F., president, Mississippi Valley Iron Co.
Goodloe, Ward, president, Ward Goodloe & Co.
Green, H. P., G. H. Walker & Co.
Green, Kenneth L., president Green Foundry Co.
Gregg, Cecil D., president, Evens & Howard Fire Brick Co.
Grimm, Hon. J. Hugo, judge, circuit court.
Grover, James H., vice president, St. Louis Union Trust Co.
Gustafson, Lewis, superintendent, David Ranken School of Mechanical Trades.
Hall, John C., president, St. Louis Building & Loan association.
Hammar, Frank V., director, Mercantile Trust Co.
Hampton, F. M., correspondent, Bankers Trust Co.
Harkrader, T. T., resident director, American Tobacco Co.
Harper, Paul V., vice president and secretary, St. Louis Coke & Iron Co.
Harris, J. Garfield, general manager, Fisher Body St. Louis Co.
Hartmann, Hon. Moses, judge circuit court.
Hatton, Richard D., vice president and manager, Laclede-Christy Clay Products Co.
Hawes, R. S., vice president, First National bank.
Hay, Lyman T., president, Hotel Jefferson.
Hedges, Isaac A., manager, Cupples Station.
Held, Geo. A., president, Jefferson-Gravois bank.
Heller, H. E., general freight agent, Chicago, Burlington & Quincy railroad.
Hemingway, W. L., vice president, National Bank of Commerce.
Henning, William C., secretary, A. Leschen & Sons Rope Co.
Hennings, Thomas C., vice president, Mercantile Trust Co.
Henry, Frank R., president, Majestic Manufacturing Co.
Higgins, J. P., executive assistant, Federal Barge Line.
Hoblitzelle, W. E., president, Smith & Davis Manufacturing Co.
Holman, C. L., president, Laclede Gas Light Co.
Holmes, Robert, president, J. A. Holmes Lumber Co.
Hooke, James A., director of public utilities.

Hunter, John, construction engineer, Heine Boiler Co.
Ittner, Hon. Anthony F., judge, circuit court.
James, Hon. George R., Federal Reserve board, Washington.
Jenkins, W. J., vice president and general manager, Consolidated Coal Co. of St. Louis.
Johnson, Jackson, chairman, International Shoe Co.
Johnston, J. L., president, Liberty Central Trust Co.
Jones, Breckinridge, president, Mississippi Valley Trust Co.
Jones, C. Norman, chairman, Title Guaranty Trust Co.
Jones, D. W., assistant secretary, Mississippi Valley Trust Co.
Jones, Reid, Mississippi Valley Trust Co.
Judd, Sam P., publicity manager, Mercantile Trust Co.
Kaltwasser, R. A., secretary and treasurer, General Metal Products Co.
Kauffman, R. King, vice president, Mercantile Trust Co.
Kavanaugh, W. K., president and general manager, Southern Coal, Coke & Mining Co.
Keller, Albert M., Paul Brown & Co.
Killoren, Hon. William H., judge, circuit court.
Kinsella, William J. Jr., president, Hanley & Kinsella Coffee & Spice Co.
Kinsey, E. R., president board of public service.
Kittredge, Joseph, general superintendent, National Malleable & Steel Castings Co., Sharon, Pa.
Knight, H. F., Knight, Gamble & Goddard.
Knight, H. H., Knight, Gamble & Goddard.
Knight, J. B., Knight, Gamble & Goddard.
Koerner, Carl A., Koerner Engineering Co.
Koontz, J. R., vice president, Frisco railroad
Kotany, Max, broker.
Kupferle, Louis F.
Kurn, J. M., president, St. Louis, San Francisco railroad.
Lark, Charles T., counsellor at law, New York City.
Lawnin, Louis D., president, N. O. Nelson Manufacturing Co.
Lengfelder, H. A., president, Orban Store Co., Belleville, Ill.
Lewis, J. A., president, Republic National bank
Linkroum, Courtlandt, New York City.
Logan, George B., attorney.
Longmire, John R., vice president, Mississippi Valley Trust Co.
Lord, Roger E., manager, Endicott-Johnson Corp.
Luedinghaus, Henry, president, St. Louis Malleable Casting Co.
Lyon, Fred D., engineer in charge, McClellan & Junkersfeld.
McConkey, James G., secretary and counsel, Federal Reserve bank.
McCourtney, J. Spencer, Boatmen's bank.
McCreery, A. H., McCreery & Taussig.
McKelvey, J. N., director public safety.
McKeown, James A., president, John O. Brien Boiler Works Co.
McKittrick, Walter, vice president, Ely & Walker Dry Goods Co.
McMillan, C. H., vice president, Mercantile Trust Co.
MacQuaid, Craige, president, United States Bank of St. Louis.
Maestre, Sidney, assistant vice president, Mercantile Trust Co.
Maffitt, William, vice president, Mercantile Trust Co.
Magill, E. E., president, Broadway Savings Trust Co.
Magruder, N. S., president, Mound City Trust Co.
Maguire, W. G., president St. Louis Coke & Iron Co.
Mahaffey, B. O., vice president, W. C. McBride, Inc.
Martin, William McC., chairman of board, Federal Reserve bank.
Meier, C. R. D., president, Heine Boiler Co.
Maxwell, W. C., vice president, Wabash Railway Co.
May, Morton J., president May Department Stores Co.
Meyer, A. C. F., president, Lafayette-South Side bank.
Meyer, Carl F. G., president, Meyer Bros. Drug Co.
Miller, Edward J., president, St. Louis Screw Co.
Miller, Henry, president, Terminal Railroad association.
Miltenberger, Alexander, president, Tower Grove bank.
Mitchell, Samuel A., counsel, Mercantile Trust Co.
Moberly, J. B., real estate loan officer, Mercantile Trust Co.
Moberly, V. T., president, Jefferson bank.
Moore, Philip N., mining engineer.
Moser, Byron W., president, Security National Savings & Trust Co.
Munroe, Charles A., chairman of board, Laclede Gas Light Co., Chicago.
Newell, John P., assistant trust officer, Mercantile Trust Co.
Newhard, C. S., Lorenzo E. Anderson & Co.
Nicolaus, H., Merchants & Manufacturers Investment Co.
Niedringhaus, George W., president, National Enameling & Stamping Co., Granite City, Ill.
Niedringhaus, T. K., vice president, National Enameling & Stamping Co.
Niekamp, William L., president, Beck & Corbitt Iron Co.
Nolte, Louis, comptroller, city of St. Louis.
Noonan, J. A., assistant secretary, Mercantile Trust Co.
Norris, William K., president, McQuay-Norris Mfg. Co.
Olin, J. M., vice president, Western Cartridge Co., East Alton, Ill.
Oltman, F. J., secretary to president, Mercantile Trust Co.
Orr,, Isaac H., president, St. Louis Union Trust Co.
Owen, Robert L., United States senator, Washington.
Papin, Loisel P., Hickman, Williams & Co.
Penton, John A., chairman of board, Penton Publishing Co., Cleveland.
Perkins, A. T., manager for receiver, United Railways Co.
Pettengill, H. J., chairman, Southwestern Bell Telephone Co.
Pierce, A. B., vice president and general manager, N. O. Nelson Mfg. Co.
Pitzman, Frederick, surveyor.
Poucher, M. R., New York City.
Powers, J. Hugh, vice president, Mercantile Trust Co.
Priest, H. S., attorney.
Pryor, E. B., president, State National bank.
Queeny, John F., chairman, Monsanto Chemical Co.
Reinholdt, Julius W., vice president, Boatmen's bank.
Reller, A. H., vice president and cashier, Bremen bank.
Richards, Oliver F., vice president, Mercantile Trust Co.
Rickman, J. H., president, Chester Knitting Mills.
Rielley, Thomas, assistant real estate loan officer, Mercantile Trust Co.
Ring, John Jr., president, John Ring Jr. Advertising Co.
Robinson, H. K., sales agent, Ohio Locomotive Crane Co.
Robinson, J. H., manager, Wheeling Corrugating Co.
Rothschild, Sidney I., president, Rothschild Bros. Hat Co.
Russell, E. J., Mauran, Russell & Crowell, architects.
Sachse, Douglas C., assistant trust officer, Mercantile Trust Co.
Scott, Hugh, vice president, Byrnes Belting Co.
Sawyer, W. H., president, East St. Louis & Suburban Ry. Co.
Schalk, Oscar G., auditor, Mercantile Trust Co.
Schopflin, John H., manager industrial department, Mercantile Trust Co.
Scott, William W. Jr., vice president and general manager, Laclede Steel Co.
Scullin, Harry, president, Scullin Steel Co.
Seidel, Julius, president Seidel Lumber Co.
Senkosky, J. A., treasurer, N. O. Nelson Manufacturing Co.
Sexton, Stephen D., vice president, Southern Illinois Trust Co., East St. Louis, Ill.
Shapleigh, A. W., treasurer, Shapleigh Hardware Co.
Shaughnessy, Martin, real estate.
Shepley, Ethan A. H., attorney.
Slocum, E. L., assistant vice president, Liberty Central Trust Co.
Smith, James E., president, Mississippi Valley association.
Smith, J. Herndon, Smith, Moore & Co.
Smith, W. W., vice president, First National bank.
Stark, Charles J., editor, IRON TRADE REVIEW, Cleveland.
Stilwell, C. S., Chicago.
Stix, E. W., president, Rice-Stix Dry Goods Co.
Strasburger, Edgar, manager, Standard Underground Cable Co.
Strauch, John B., president, More-Jones Brass Co.
Streiff, George H., manager leasing department, Mercantile Trust Co.
Studebaker, Clement Jr., Illinois Power & Light Corp., Chicago.
Stupp, George, president, Stupp Bros. Bridge & Iron Co.
Sullivan, A. H., manufacturers' agent.
Tansey, George J., attorney.
Taussig, James Jr., McCreery & Taussig.
Teipel, Joseph, president, St. Louis Steel Casting Co.
Thacher, Arthur, consulting engineer, New Jersey Zinc Co.
Tillay, R. R., manager St. Louis Clearing House association.
Tompkins, E. S., industrial commissioner, chamber of commerce.
Travis, J. M., president, Multiplex Faucet Co.
Turner, V. C., secretary, Scullin Steel Co.
Upthegrove, Daniel, president, St. Louis Southwestern Railway lines.
Utterback, J. C., president, City National bank, Paducah, Ky.
Wade, Festus J. Jr., Mercantile Trust Co.
Watts, F. O., president, First National bank.
White, E. J., vice president, Missouri Pacific railway.
White, Joseph W., trust officer, Mercantile Trust Co.
Wiles, I. R. L., president, Wiles-Chipman Lumber Co.
Wilkinson, M. L., president, Scruggs, Vandervoort & Barney, Dry Goods Co.
Williams, Ben. P., vice president, Hickman, Williams & Co.
Williams, J. G., Mississippi Valley Trust Co.
Williams, R. W., vice president, American Brake Co.
Wilson, George W., vice president, Mercantile Trust Co.
Wilson, H. B., H. B. Wilson Co.
Wilson, R. E. Lee, president, Lee Wilson Co., Wilson, Ark.
Wimmer, W. L., president, Wimmer Contracting Co.
Winship, Addison L., vice president, Webster & Atlas National bank, Boston.
Yost, C. S., editorial editor, *Globe-Democrat.*
Zeibig, Frederick G., Cornet & Zeibig Real Estate Co.
Zelnicker, Walter A., president, Zelnicker Supply Co.
Zepp, Philip H., assistant real estate officer, Mercantile Trust Co.

Making Pig Iron with Illinois Coke

BY W. G. MAGUIRE

COKING of Illinois coals is only of interest to us inasmuch as it enables us to produce pig iron in this district. In other words, it is an incident thereto but a most important one. Mr. Scullin has talked to you about St. Louis as a steel center. I may wish to discuss in general the same thing but as you will recognize from a different point of view, namely, the coking of Illinois coals.

What makes iron and steel producing centers?

1. The low cost of assembly of the necessary raw materials.

2. The proximity of an adequate market.

These have proven to be the determining factors in the past and they will be so in the future. The first producing centers of any magnitude in this country were located in the Lehigh and Schuylkill valleys. Why? The availability of local fuel, anthracite coal.

Abstract of address delivered at St. Louis steel dinner, May 27. Mr. Maguire is president of the St. Louis Coke & Iron Co.

This was before the advent of coke as a metallurgical fuel in this country. In these early days the necessary ores were obtained locally. Bear in mind that the average blast furnace in the twenties and thirties did not consume much over 10 tons of ore daily.

The discovery and utilization of Connellsville coke for blast furnace fuel was the real reason for the establishment of the iron and steel industry in what is now known as the Pittsburgh district.

Early Ore From Missouri

The first furnaces of the Carnegie company, the Lucy furnaces, originally operated on high grade iron ores originating at Iron Mountain and Pilot Knob, Mo., which were transported down the Mississippi and up the Ohio rivers to Pittsburgh.

President Busby of the Iron Mountain Co., showed me the other day among the old files of the company a letter dated about 1870 from a rising young steelmaker, Andrew Carnegie, complaining that their last shipment of ore was running only 65 per cent iron.

Later on, the cheaply recoverable ores of the Minnesota and Michigan ranges became the principal source of ore supply for the entire iron industry of the North. This ore was and is transported by the cheapest method, namely, the large bulk carriers of the Great Lakes.

To illustrate, the present cost, namely, 83 cents, of hauling one ton of ore on the Great Lakes, 1100 miles from Duluth to Ashtabula, O., is less than the cost, namely, $1.51, of hauling a ton of coke from Connellsville to Pittsburgh, or the cost, namely $1.10, of hauling a ton of coal from Franklin county, Illinois to Granite City, both points being less than 100 miles, the mileage being respectively, 58 and 85.

Iron and steel producing centers have gradually moved westward as new markets developed and they in their turn developed new markets. The result, however, has always been the same, the ores have sought the coke, with one exception, the development of the Chicago district. The first furnaces there operated originally on Missouri ores from Pilot Knob and Iron Mountain. The fuel was brought from Connellsville. Chicago, as a producing center could not and did not compete successfully as to costs of manufacture, with the Pittsburgh district, until the advent of the by-product coke oven and the utilization of the gas, tar, ammonia, that was wasted in the beehive practice. Chicago, today, due to the fact that it utilizes high-grade eastern coking coals on long freight rates still has a higher raw material assembly charge than the Pittsburgh district, in spite of its advantageous position in getting ore by water.

What reason has St. Louis to hope to be a great iron and steel producing center? The iron ores from the northern ranges are distant; the present freight rate is $2.93 per ton of ore, all rail haul. This compares with the rail, lake and rail-transportation cost per ton of ore to the Pittsburgh district of $3.06 on direct ore and $3.26 on ore off the dock; to the southern Ohio district, $3.16 on direct ore and $3.36 off the dock; to the Chicago district, $2.11.

It would seem that we would still be at a disadvantage with Chicago. The whole and sole answer is our ability to carbonize Illinois coal successfully. By successfully, I mean the ability to make a high-grade metallurgical fuel for use in blast furnaces. Our transportation cost of assembly of the necessary raw materials to make one ton of pig iron is approximately $1.50 per ton less than Chicago when we operate on all northern ore, and when using half Missouri, as we now do, $3.50. Why this difference? Again, Illinois coal. The transportation charge on sufficient coal to make a ton of coke in the by-product ovens at Chicago is approximately $4.80; to Granite City, $1.70.

Now, as to Missouri ore. More than one-half of our requirements are now being furnished from mines in this state, the principal source of supply being Iron Mountain. Certain business men of vision, recognizing the future of this territory, have been willing to undertake the cost of opening up this old-time property and have erected a mill there which has most successfully concentrated the ores of that large deposit at a reasonable cost. So that St. Louis now has, only 90 miles away, a definite iron ore production, and I believe this is only the start of the development of iron ores in Missouri.

All this is not an idle dream of freight figures and possibilities. We have been making these facts since 1921. Our coke ovens have produced metallurgical coke out of Illinois coals for three years. We have carbonized over 1,600,000 tons of Illinois coal, from which we have produced 1,000,000 tons of metallurgical coke. We have used this coke in our blast furnace and have met the best standards of practice with it, and have, since we began operations here, produced one half million tons of pig iron.

Our total consumption of coke per ton of pig iron produced for the last campaign on 500,000 tons of iron produced was 1951 pounds of coke. In the manufacture of foundry iron, utilizing the highest grade of Connellsville coke, good practice requires from 2250 to 2300 pounds of coke per ton of pig iron produced, malleable iron 2150 to 2250 pounds and 2100 pounds for basic. Our practice on Illinois coals has been 10 to 15 per cent better than standard.

While facts are facts and pigs is pigs, from my short experience I have always found it necessary when dealing with bankers at least, to call in an expert, so I shall quote the opinion of H. A. Brassert, formerly a member of the furnace committee of the Steel corporation:

"From the very beginning of operations, the blast furnace showed remarkably free working and even driving, not only in regard to low loss, but particularly in respect to the low coke consumption, on ores of comparatively low metallic yield, and its ability to use very high heats. In regard to production, this furnace established notable daily records fully equaling the best operations in the United States. No other coke except that produced from the Illinois mixtures has ever been used in the blast furnace. This coke has proved ideal, burns rapidly and with an intensity at the tuyeres due to its relative high porosity, yet has sufficient strength and is hard enough to resist abrasion and solution by carbon dioxide in the upper part of the stack. It has a splendid blocky structure without detrimental cross fractures and lends itself admirably to the high burden ratio. The excellent results of the blast furnace practice shown by this plant are in a very large measure due to the quality of the coke produced at the ovens."

I have said little about the market for iron and steel in this district, because it has always seemed to me to be so obvious. You gentlemen are aware that the St. Louis district is the only iron and steel consuming district in this country that has not, as yet, full productive capacity to meet the demand. The pig iron consumption in this immediate territory is 800,000 to 1,500,000 tons annually. The steel consumption of the entire Southwest is either made here or passes through St. Louis.

Another Furnace Planned

Our future development will be another blast furnace, for which we are now arranging, and which will consume two-thirds of our present production of coke. The pig iron market in this district is large, and we intend to supply it. I do not believe our company will stop with the production of pig iron. The history of a successful merchant furnace company has been that they have eventually gone into steel production, supplying the demand for pig iron more or less as a by-product. This, I should say, is our eventual future, and I trust that it will not be long distant when at another such dinner as this we can tell you of even greater contributions this company is making to St. Louis as an iron and steel producing center.

IRON TRADE REVIEW
Registered U. S. Patent Office
The Authority of Industry National and International

Charles J. Stark, - - - - - - - - - - Editor
Earl L. Shaner, - - - - - Engineering Editor
John D. Pease, - - - - - - Advertising Director

Published Every Thursday by
THE PENTON PUBLISHING CO., CLEVELAND, O.
Member, Audit Bureau of Circulation, Associated Business Papers, Inc., and National Publishers Association

BRANCH OFFICES
BOSTON - - - - - - - - - - - 426 Old South Bldg.
CHICAGO - - - - - - - - - - 1147 People's Gas Bldg.
CINCINNATI - - - - - - - - - - 504 Edwards Bldg.
NEW YORK - - - - - - 2203-2206 No. 220 Broadway
PITTSBURGH - - - - - - - - 2148-49 Oliver Bldg.
SAN FRANCISCO - - - - - - - 675 Monadnock Bldg.
WASHINGTON - - - - - - - - 84 Home Life Bldg.

FOREIGN OFFICES
BIRMINGHAM, ENG. - - - - - - - - Prince's Chambers
LONDON, ENG. - 2-3 Caxton House, Westminster, S. W. I.
PARIS, FRANCE - - - - - 23 Rue de la Bienfaisance
Cable Address IROTRAPEN, London, IROTRAPRI, Paris

Subscription, United States, Cuba and Mexico, $6 per year. Canada, $8.50 per year. Great Britain and other countries, £2:0:0 per year

Entered at the Postoffice at Cleveland as Second Class Matter
Copyright 1924 by The Penton Publishing Co.

Steel Reaction Is Sweeping

ABRUPT changes have not been uncommon in the recurring fluctuations of the iron and steel market. In fact, it is the sweeping variations to which it is subject that has given the iron and steel business the characteristic and reputation of being an erratic undertaking as commercial pursuits go.

In all its tumultuous career, however, ranging from high pitched activity to acute depression, it is doubtful whether the iron and steel situation ever has undergone so sharp a swing up and down as has marked its course during the past five months. Last December steel production after a decline starting in May 1923 reached the lowest point since September 1922. In December the industry was operating at about 65 per cent of theoretical steel ingot capacity. By March this had risen to the highest rate in history or practically 91 per cent of theoretical maximum. The slump starting in April brought steel production for that month down to about 73 per cent. May has seen this shrinkage go still further with steelmaking operations now around 60 per cent. Since last December, therefore, steel production rose 26 per cent in three months and dropped 31 per cent in two months, showing a total fluctuation in that period of almost 60 per cent. Probably never before has the industry gone through so rapid an expansion followed by a corresponding contraction in so brief a period of time.

The variations in pig iron production have not been as precipitate as those of steel but they have been exceedingly severe. From the low point of last year in December, production rose steadily until in March. By that time the increase represented approximately 18 per cent. The turndown in April saw a decline of less than 4 per cent due to the slower response that comes from the nature of the blowing out or in of blast furnaces. The cumulative effect of the April-May curtailment did not fall until May. Then production had shrunk 21 per cent below March.

A clearer index to the contraction of the pig iron industry is supplied by the numerical record of active furnaces. During April and May a net loss of 81 active stacks is shown or approximately 30 per cent. Not since the collapse of the market in the closing months of 1920 have so many furnaces gone out of commission in a two-month period; prior to that the panic of 1907 presents the only other parallel, excepting the postwar readjustment followed by the steel strike in 1919 when many stacks were temporarily banked.

This analysis tells several things. It illustrates again that steel by a wide margin has become the more sensitive barometer of trade changes than pig iron. Likewise, it accents on what a thin basis of accumulated orders the high production of the first quarter of 1924 was built up. Week-to-week buying probably moreso than with any previous example of a large market was depended upon to sustain operations. When that faltered and subsided, steel production was quick to reflect the fact and the degree of the reaction.

Immigration Law Brings Changes

WHILE the new immigration law limits the number of entrants to 161,000 annually until 1927 and then to 150,000, the measure makes it possible for a much larger total of aliens to enter the country. This is because the law admits the so-called non-quota immigrants without numerical limitation.

This class embraces the unmarried children over 18 years of age and the wife of an American citizen. It also includes immigrants previously admitted and returning after a temporary residence abroad. The incoming women and children alone, at least for a number of years, are expected to reach 150,000 annually. In addition, native-born citizens of any country of the Western Hemisphere are admitted without regard to numbers. Based on the records of the last two years, the annual admissions of this group will reach 200,000. During the first six months of the current immigration year 103,000 Canadians and Newfoundlanders and nearly 63,000 Latin-Americans came to the United States.

Most likely the arrivals from the Americas will tend to increase in proportion to the decrease in the number of admitted Europeans. Despite the drastic limitations of the new law, it is probable that an annual immigration of about 500,000 will result. One of the most important administrative

changes in the new act is the provision that only the number of vises may be issued for any nationality corresponding to the allotted quota. That will obviate many of the hardships of the recent law which resulted in the turning back of immigrants arriving in excess of the quota. In addition the quotas are distributed over 10 months instead of over five months, as formerly.

The bill provides for a survey into the composition of the white population of the United States as a whole, according to the 1920 census and the determination of what proportion by birth or ancestry may be attributed to the different nations of Europe. When the estimate has been made each nation in Europe will have a quota based on the same percentage of 150,000 as the estimated number of persons of that origin in the United States bears to the entire white population. This is expected to maintain the quotas at about the same ratios as under the 1890 census, the basis for the new law, with the possible exception that there may be some upward revision of the number of Germans and Irish to be admitted.

Apparently the country is committed to the policy of restricted or selective immigration. The new act, however, takes more cognizance, indirectly at least, of the increasing needs of industry than most of the earlier proposals had indicated would be the case.

Making Unionism Compulsory

LABOR unions are making a dramatic appeal through their representatives in congress to obtain their own adjustment boards, to be set up in place of the present railroad labor board, as proposed in the Howell-Barkley bill. The bill has been taken away from the committee under the new compromise insurgent rules of the house as a result of the present mixed political affairs in congress. It will come up for action in the house at an early date.

It is not known that the measure has any support whatever outside of the labor unions and their adherents in congress. Labor union representatives have been in the congressional galleries taking notes of how congressmen express themselves.

The bill provides that the proposed adjustment boards shall consist of an equal number of representatives of the railroad management and employes, but the "joker" is found in the fact that the measure specifies the organizations from which the employes' representatives shall be drawn, the list including the brotherhoods, the shop crafts and all organizations affiliated with these organizations or with the American Federation of Labor. It excludes nonunion labor and company unions. Members of the latter class would be forced to become identified with the unions named in the bill. The railroad labor unions say they are opposed to the railroad labor board as constituted at present, because it is powerless to enforce its decisions. But it is believed their antagonism is due to the fact that the present law protects the public interest generally, despite some errors in its administration. The public representatives in the past, by acting as umpires have brought about some rulings of vast importance affecting wage relations, strikes and the public. Certain of these have not been satisfactory to the unions.

President Coolidge referred to this question in his message to congress, and said he favors any agreement that could be accomplished through the railroads, the employes and the public. Otherwise, he stated, the labor board may well be left for the present to protect the public welfare. The public is well aware that its interests are more secure with the present board than with the unions, but the public's view does not always prevail in congress, especially where an organized labor lobby insists on dictating the procedure.

Facilitating Standardization

IN VIEW of the real benefits derived from reasonable standardization, it is unfortunate that the term has been overworked and that the value of establishing necessary standards is not more widely appreciated. The work of unifying specifications again has been brought to attention during the past few weeks, when one national association after another has devoted a liberal part of the program to papers, reports and discussions dealing with standards.

Campaigns to standardize and simplify dimensions, patterns or practice are easy to start but not always easy to carry through to completion. Diverging views of interested parties must be reconciled, prejudice must be broken down and the benefits expected from the adoption of the standard must be made impressive before enthusiasm for the proposal can be aroused. The national associations engaged in standardization work, as well as the government bureaus and individuals and companies co-operating with them, deserve the support of all industry.

Manufacturers can assist by replying promptly and fully to questionnaires and by sending representatives to conferences in which their interests are involved. In return, the sponsors of new standards are obligated to limit the amount of correspondence and number of meetings to the minimum required, in order that the agencies co-operating in the work will not be put to unwarranted inconvenience and expense. In brief, standardization and simplification activities must be governed by good judgment, patience and consideration for all concerned.

Japanese Market Heavy

(*Concluded from Page* 1481)

and steel markets here receive fewer and smaller inquiries. Prices are much below the current market.

Free importations, held off the market so far, are rapidly being released by importers whose financial difficulty grows with bankers' cautious collection of old advances. The steel market is flooded with structural shapes. Nails, tin plates and galvanized sheets are not so freely released and their floating stock is rather limited.

Among others tin plates are in fair request from packers. Although the accumulated stock in Osaka is constantly forwarded to Tokio, every arrival is well absorbed.

The visible stock of pig iron has grown smaller, though only slightly, due to domestic furnaces' regulated supply and limited importation from China.

While the general sentiment of the pig iron market is slightly firmer, uncertainty in the steel market grows more serious. Its recent improvement and price advances are all wiped away. In the pig iron market No. 1 Japanese is quoted at 62 yen ($24.80), No. 2 at 60 yen ($24) and No. 3 at 58 yen ($23.20), No. 1 Hanyang (Chinese) is quoted at 61 yen ($24.40) per ton. No. 3 Cleveland is nominally quoted at 85 yen ($34.00) per ton. Bengal and Tata pigs (Indian) are quoted at 60 yen ($24) per ton. In the steel market round bars are quoted at 4.25 yen ($1.70) per 10 kwamme. Square bars are quoted at 4.65 yen ($1.86) per 10 kwamme. Flat bars are quoted at 4.70 yen ($1.88) per 10 kwamme. Plates are quoted at 4.60 yen ($1.84) per 10 kwamme. Sheets are quoted at 7 yen ($2.80) per 10 kwamme.

Nails are firmer, being up higher to 12.50 yen ($5) per keg. Galvanized sheets are up to 1.39 yen (55.6c) per sheet.

Today's exchange is yen to 40 cents. Kwamme equals 8.2673 lbs.

Export Prices Unchanged

London, May 23.—According to quotations compiled from customs manifests for April by the board of trade, there were not any marked changes in British export prices since the previous month. The prices for carbon billets and beams are slightly higher. Ferromanganese is $10.50 a ton less than in March and the prices for plates, galvanized sheets and tin plates also have slightly decreased.

The average British export prices for April are as follows:

	£	s	d	
Foundry pig iron	5	2	0	$22.30
Ferromanganese	15	13	2	68.50
Carbon billets	14	8	9	63.25
Beams	10	15	9	47.00
Plates	11	12	4	50.60
Galvanized sheets	20	13	2	90.50
Tinplates	25	0	2	109.00

British Iron Output Less

London, May 23.—Production of pig iron in Great Britain in April according to the official figures of the National Federation of Iron and Steel Manufacturers, was 618,400 tons, compared with 668,600 tons in March, 612,700 tons in February, 636,600 tons in January, and 652,200 tons in April 1923. This represents a decrease of 50,200 tons compared with March output and is 18,200 tons less than the output in January. This decrease in production was principally due to the Easter holidays. There were 194 furnaces in blast at the end of April, compared with the same number at the end of March, 202 at the end of February, and 204 at the beginning of the year. Pig iron production in April included 188,400 tons of hematite, 221,400 tons of basic, 145,800 tons of foundry, and 33,700 tons of forge grades.

Production of steel ingots and castings in April was 711,500 tons compared with 816,900 tons in March, 767,600 tons in February, 694,300 tons in January, and 749,400 tons in April 1923. This is a decrease of 105,400 tons compared with March and of 38,200 tons compared with April 1923, but is 17,200 tons more than the January output.

Index to Business Trend Charts

THIS ISSUE

Subject	Page
Employment Index	1480
Index of Basic Production	1480
Building Cost Index	1491
Steel Price Index	1491
Farmer Purchasing Power	1492
Steel Castings Bookings	1492

REFERENCES

Automotive Production	May 29
Foreign Exchange	May 29
Independent Sheet Situation	May 29
Merchant Pig Iron	May 29
Railroad Earnings	May 29
Wholesale and Retail Prices	May 29
Building Construction	May 22
Business Index	May 22
Commercial Failures	May 22
Foreign Trade	May 22
Freight Car Movement	May 22
Steel Orders and Prices	May 22
Bradstreet's Index	May 15
Car Orders	May 15
Electric Power Production	May 15
Monthly Ingot Production	May 15
Pig Iron Situation	May 15
Wage Production	May 15
European Conditions	May 8
Iron and Steel Foreign Trade	May 8
Mail Order Sales	May 8
Iron and Steel Price Parity	May 1
Security Prices	May 1
Monthly Coke Output	April 24
Structural awards	April 24
Bonds and Interest	April 3
Bank Clearings	March 27
Corn and Wheat Prices	March 27
Monthly Commodity Prices	March 13
Foundry Pig Iron	March 6
Monthly Alien Migration	Feb. 14
Freight Factor	Nov. 1
Coal Production	Nov. 8
Steel Earnings	Nov. 8

Coke Production Drops After Brief Gain

Washington, June 3.—The recovery in the production of beehive coke in the third week of May was but temporary, and there was a sharp decline in the week ended May 24, says the geological survey. The total output is now estimated at 159,000 net tons, a decrease from the revised figure for the week preceding of 30,000 tons, or nearly 16 per cent. The decrease was confined to Pennsylvania, Ohio, and West Virginia. The weekly record follows:

	Week ended May 24, 1924a	Week ended May 17, 1924b	Week ended May 26, 1923
Pennsylvania & Ohio	114,000	143,000	334,000
West Virginia	7,000	10,000	23,000
Alabama, Kentucky, Tennessee & Georgia	20,000	20,000	23,000
Virginia	9,000	7,000	20,000
Colorado & New Mexico	5,000	5,000	9,000
Washington & Utah	4,000	4,000	6,000
United States total	159,000	189,000	415,000
Daily average	27,000	32,000	69,000

(a) Subject to revision. (b) Revised from last report.

Malleable Output Lower

Washington, June 3.—Production of malleable castings in April totaling 58,634 tons was considerably below that of March which amounted to 72,807 tons, according to reports of the department of commerce, based on returns from 132 manufacturers. Bookings in April totaled 45,955 tons as compared with 60,326 tons in March. Following is a comparison of production, bookings and operating rate since May 1923:

	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
May	64,726	71	52,898	91,174
June	65,168	67.7	42,067	96,240
July	57,881	58.9	41,723	98,241
August	68,069	66.0	39,830	103,068
September	60,930	59.9	38,636	101,750
October	62,238	59.9	48,621	103,837
November	52,727	49.1	37,231	107,350
December	49,724	46.5	45,012	106,825
January 1924	64,379	58.6	73,964	109,798
February	66,637	62.0	62,652	107,551
March	72,807	66.5	60,326	109,414
April	58,634	53.7	45,955	109,131

Furniture Shipments Drop

Washington, June 3.—Shipments of steel furniture in April totaling $1,658,610, were slightly lower than in the preceding month when they amounted to $1,661,303, according to reports of the department of commerce, based on returns from 22 manufacturers. The following figures give a comparison of shipments since January, 1922:

	1922	1923	1924
January	$983,834	$1,362,470	$1,592,338
February	967,125	1,307,173	1,605,409
March	1,087,228	1,709,206	1,661,303
April	1,058,382	1,520,286	1,658,610
May	1,056,735	1,506,072	.....
June	1,015,463	1,401,950	.....
July	945,768	1,247,605	.....
August	943,087	1,345,147	.....
September	1,062,495	1,273,259	.....
October	1,227,447	1,365,600	.....
November	1,204,310	1,339,425	.....
December	1,376,152	1,455,836	.....

The Business Trend

June 5, 1924

BY JOHN W. HILL, FINANCIAL EDITOR

POLITICAL shadows continue to darken the economic horizon. The threat of a third party, with its radical designs, hangs over the situation. One result is to fan the flame of business uncertainty.

Political events, however, comprise but one factor in the present state of trade. Some over-extension of plant capacities, price and wage inequalities, the backward season and unsettlements in Europe are of deeper influence.

The estimate has been made that in seven months the country can produce sufficient goods for 12 months' consumption. This means that high-pitched capacity operations cannot be maintained indefinitely.

It also means a readjustment of manufacturing industries to a normal peacetime basis. That process now seems to be underway. It is being accomplished speedily but most fortunately without shock or financial stress. Already a better balance is in evidence.

No Strain Apparent

If inventories are so heavy, as to require liquidation no strain on credit has resulted. In recent weeks the commercial loans of 749 leading member banks of the federal reserve system have been steadily declining.

Moreover, total rediscounts of the federal reserve system are $301,000,000 smaller than 12 months ago. Interest rates are falling, and the Cleveland federal reserve bank has followed the New York bank in reducing its rediscount rate from 4½ per cent to 4 per cent.

In 1920, deflation was accompanied for a time by rising loans and by stiffening interest and rediscount rates. The present plethora of credit eventually will serve as a powerful stimulant to recovery. Meanwhile it stands as a mighty buffer again jar.

Trade Not Anaemic

Continued high traffic and big retail trade indicate that business is far from an anaemic stage. April sales of department stores showed more than the usual seasonal increase. They gained 11 per cent over 12 months before, partly due to Easter trade.

Railroad earnings are reflecting the drop in traffic below the high 1923 totals. With the exception of last year both traffic and earnings are exceedingly favorable. Roads are instituting economies in many ways.

Executives of a large railroad representing 96 per cent of the country's mileage have announced that $766,000,000 has been appropriated for improvements in 1924. This is 30 per cent less than in 1923, but it is a larger sum than for any other year in the last decade.

The Barometer of Business

Weekly Comparison

	Last week	Week before	One mo. ago	One year ago	1913
Business Failures..	...	449	384	...	...
Cash ratio Fed. Res. System %.	82.7	83.7	82.0	76.1	...
Loan rate, 4-6 mos. N. Y. %.	4-4¼	4-4¼	4½-4¾	5-5¼	5¼
Aver. 25 industrial shares	$107.10	$106.86	$107.49	$105.94	$58.19
Aver. 25 railroad shares	$63.52	$63.48	$61.93	$60.95	$82.91
Aver. 40 bonds ..	$78.98	$78.93	$78.46	$78.20	$93.00
Car loadings, week ended May 17.	913,000	909,187	876,923	991,797	*862,040
Bank debits, 243 cities (000 omitted)	$9,103,596	$9,935,250	$9,085,094	$7,849,926	.....

*1920

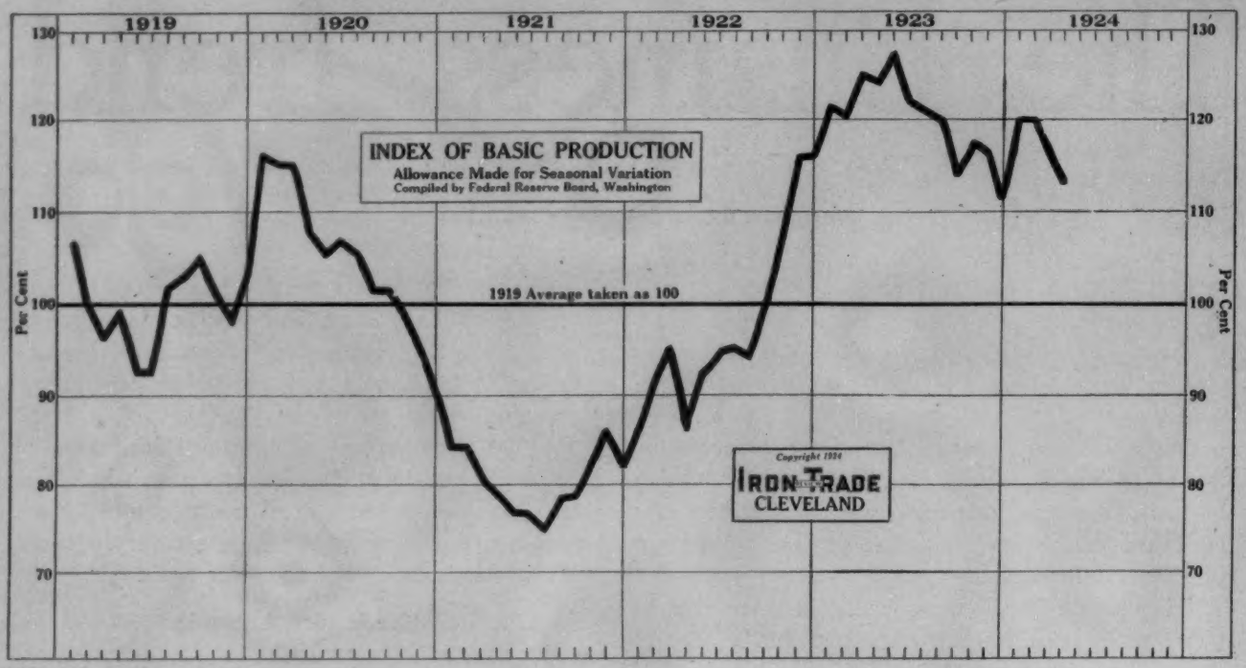
Foreign Exchange (Demand)

	Normal	Last week close	One week before	One month ago	One year ago
Sterling	$4.86	$4.31	$4.34	$4.38	$4.62
Francs	19.3c	5.12c	5.40c	6.45c	6.47c
Lira	19.3c	4.34c	4.41c	4.48c	4.68c

Monthly Comparison

		One Month before	One Year ago	1913 Mo. average
Dodge Building awards in 27 states (sq. ft.)	63,347,400	68,425,100	65,378,100	31,250,000
Business failures: Number	1,707	1,817	1,520	1,336
Liabilities ...	$48,904,452	$97,651,026	$51,491,941	$22,732,000
Exports	$348,000,000	$339,674,106	$325,492,000	$233,195,000
Excess of gold imports	$44,027,000	$34,606,000	$8,533,000	†$630,716
Bureau of labor price index ..	148	150	159	100
Bradstreet's price index	135.8	136.9	147.8	100
Economist's British price index	170.6	170.8	163.4	100
Nat'l Industrial Con. board living cost index	161.8	163.5	159.1	‡100
New incorporations	$528,900,000	$808,923,700	$1,006,300,000	$49,301,000
Railroad net earnings	*$80,239,885	$71,191,664	$84,124,312	$59,301,000

†Excess of gold exports ‡July, 1914. *March.

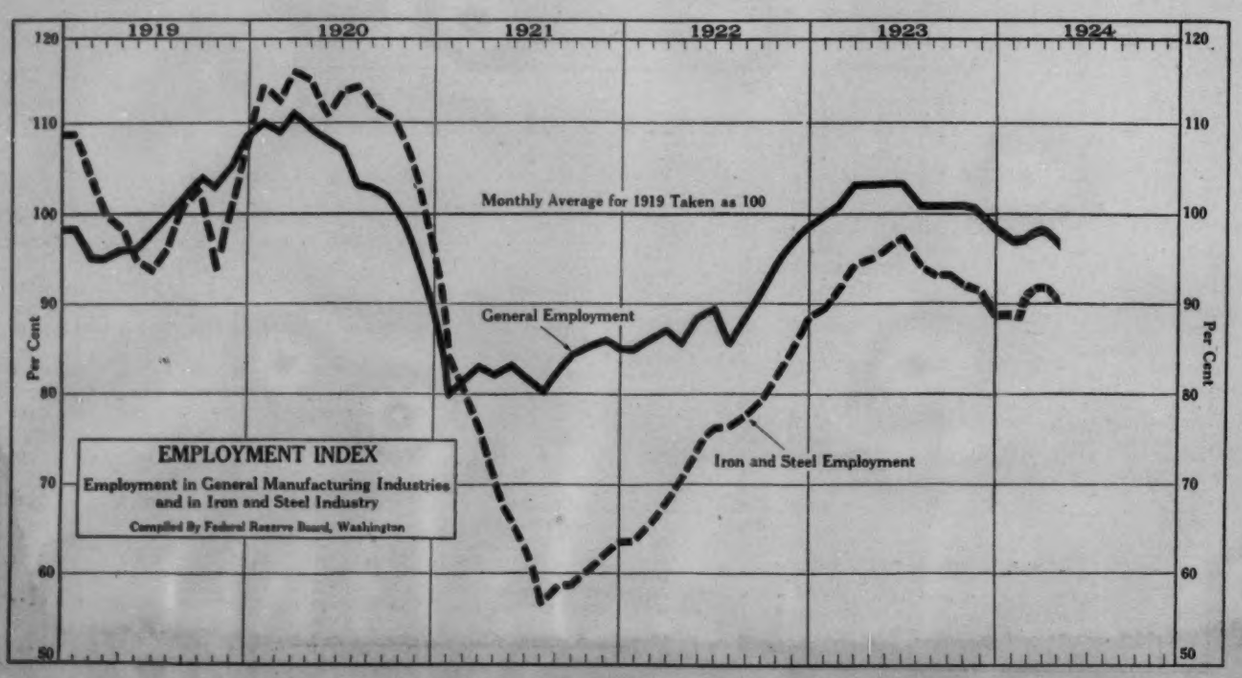


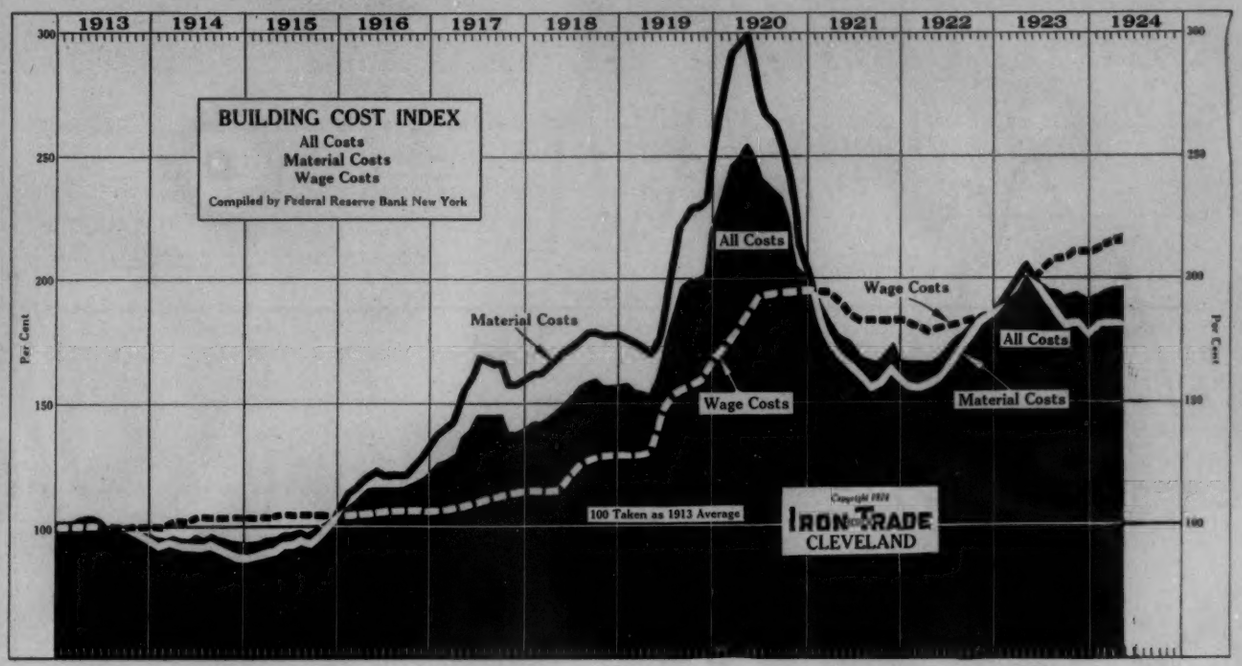
Basic Production

THE upswing of production in basic commodities early in the year was shortlived. In April, the index of production compiled by the federal reserve board, dropped to 113.7 of the 1919 monthly average. This was a decline of 2 per cent from March. Compared with the high point for the year, a loss of 5 per cent is shown, while the index stands 8 per cent under the level of one year before. Allowance for seasonal variation is made in the curve and the present decline is not seasonal.

Employment Index

THE downward trend of employment, begun last summer and interrupted in the early months of 1924 has been resumed. In April the index of employment in manufacturing industries stood at 97 per cent the 1919 monthly average. This was the biggest drop of any month since July 1922. It brings employment down to the same level of November 1922. Employment in iron and steel plants at 90.3 per cent of 1919, is down 2 per cent in a month and 5 per cent in 12 months.



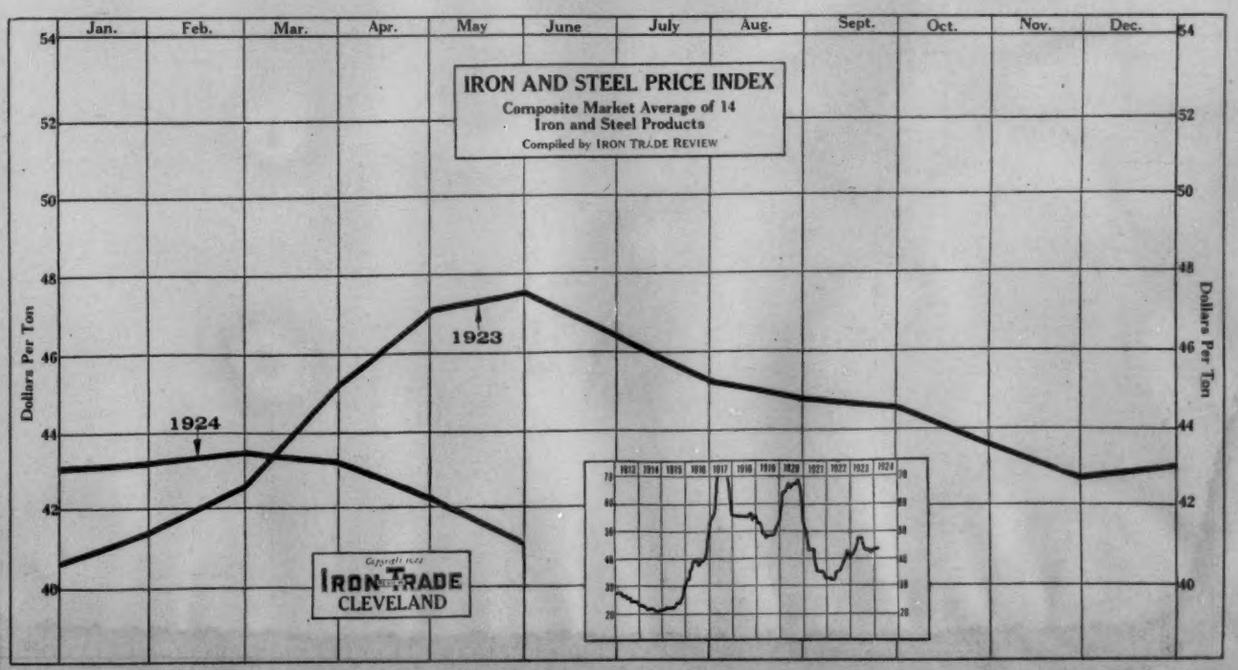


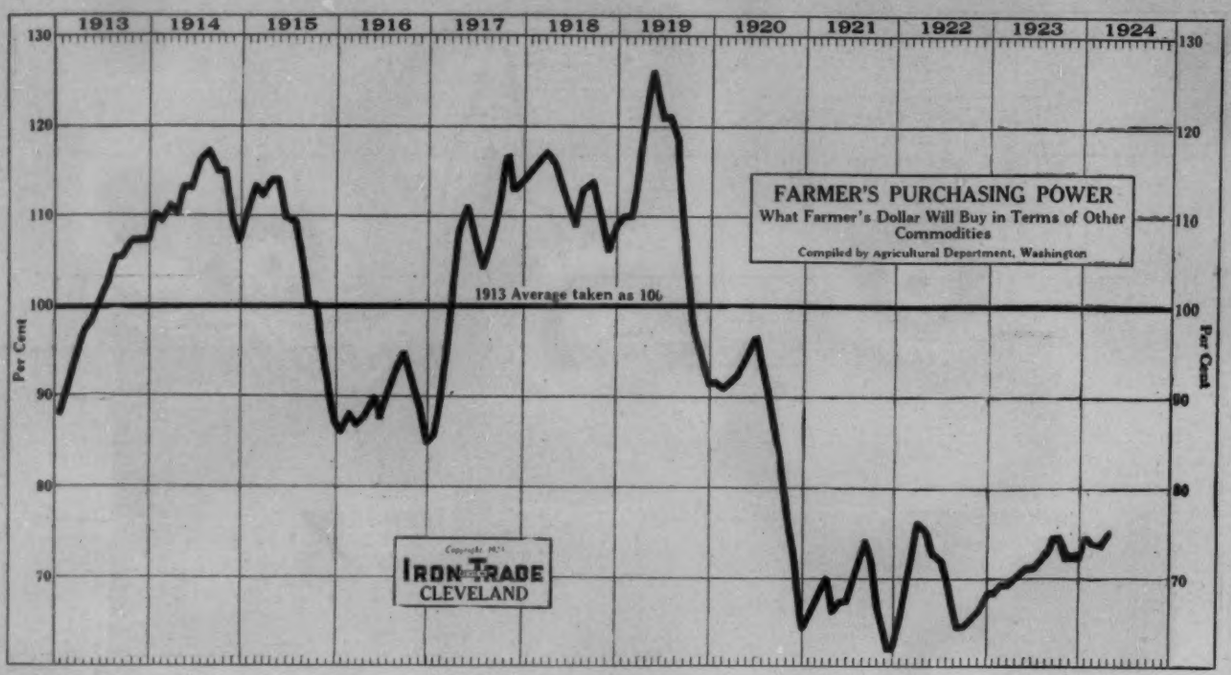
Building Cost Index

ONE of the most significant of recent developments has been the halt in the upward march of building construction costs. This reflects the spreading reaction of building activities which have been partly chilled by high costs. All building costs now are 95 per cent above the 1913 average, according to the computation of the federal reserve bank of New York. Material costs are 82 per cent above prewar while wage costs stand at 114 per cent over 1913. Wages have been rising steadily for over two years.

Steel Price Index

IRON and steel prices, measured by IRON TRADE REVIEW's composite market index of 14 iron and steel products, have been steadily falling since February. The index now stands as 35 per cent above the 1913 average. It is 13 per cent lower than it was at the peak of 1923. At that point iron and steel values were 80 per cent over the prewar basis. Iron and steel is now 9 per cent under the average for all wholesale prices, measured by the bureau of labor statistics commodity index.



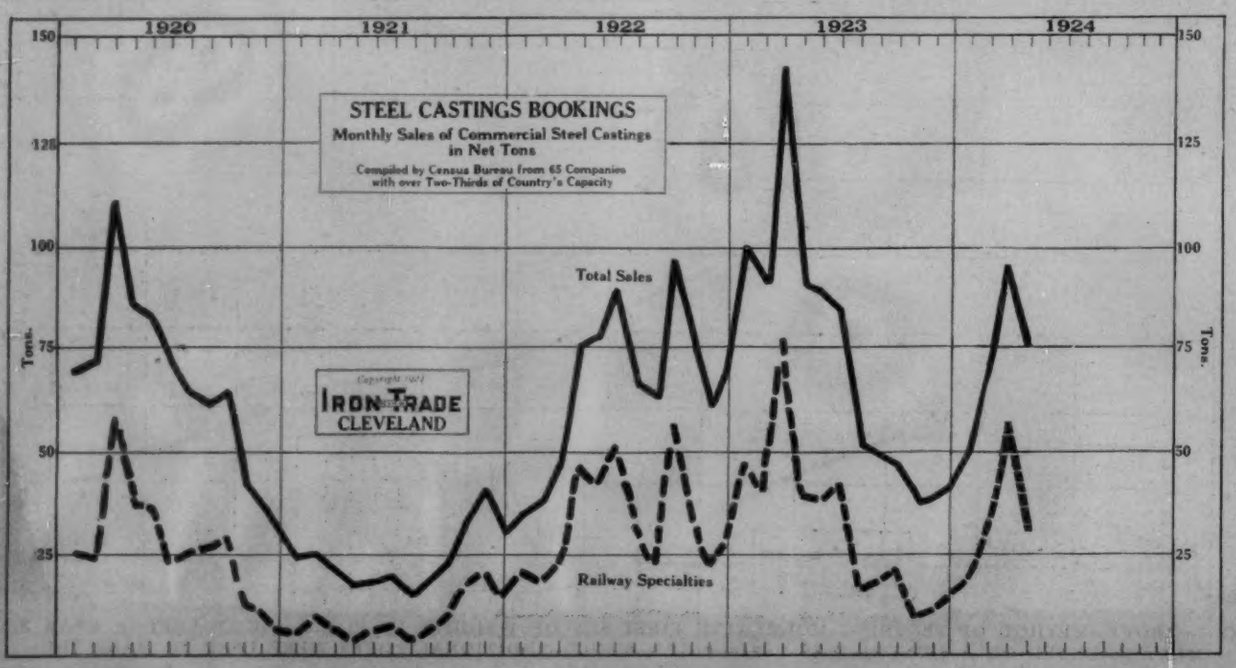


Farmer Purchasing Power

THE purchasing power of the farmer has shown distinct improvement this year. In April, according to the agricultural department, it stood at 76 per cent of the 1913 level. That was the highest point reached by the curve for any April since 1920. It shows an increase of nearly 9 per cent over the purchasing power of 12 months ago. Farm products prices now are only 6 per cent below the general level of wholesale commodities. They were 20 per cent below in 1921.

Steel Castings Sales

CURTAILED purchases by the railroads are reflected in the report of steel castings sales for April. Total sales of castings for the month of 76,176 tons declined 21 per cent from March. Sales of railroad castings dropped nearly 50 per cent to 30,150 tons. Miscellaneous castings, however, gained 21 per cent to a total of 46,026 tons. In March railroad purchases absorbed 60 per cent of the total sales and miscellaneous sales, but 40 per cent. These ratios were reversed in the month of April.



Melting 9 Tons in 3-Ton Furnace

Capacity of Electric Furnace Increased To Melt Sufficient Iron To Pour Large Gear Wheel — Operating Door Banked Up About 10 Inches With Cement Made of White Sand and Sodium Silicate

BY LARRY J. BARTON

IN MAKING large castings it sometimes happens that more metal is needed than can be produced by the melting unit operating at its rated capacity. In such cases it may be possible to make sufficient minor changes in the design of the melting unit successfully to melt a larger tonnage of metal. This operation recently was illustrated at the plant of the Dibert, Bancroft & Ross Co., Ltd., New Orleans, when, in producing a large gear wheel, 9 tons of metal was melted in a 3-ton electric furnace.

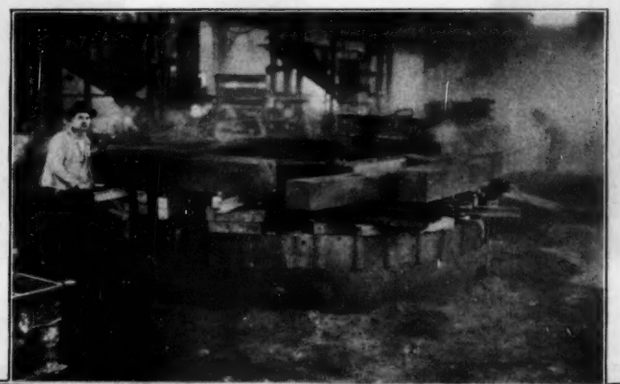
With no possible chance of digging out the hearth, considerable thought was required to devise a method for supporting the large body of metal and at the same time, to allow the furnace operations to be handled satisfactorily. Other questions called for a solution, such as obtaining hot steel at the bottom of the melt, being able to tap out successfully, to manipulate the slag, and most important to keep the metal within the desired analysis.

A general idea of the casting may be gained in Figs. 1, 2 and 3. The method followed in molding the gear wheel is shown in Fig. 2. A gear segment mounted on a spindle was used and the teeth were swept up. Fig. 3 shows the molded wheel after the rim had been washed with silica flour and dried with charcoal pots. The manner in which the *dogs* were placed at each pad to prevent cracking during shrinkage is shown. Two gates were used. The furnace employed was a standard 3-ton type manufactured by the Pittsburgh Electric Furnace Corp., Pittsburgh, and operated on an acid hearth. The furnace hearth was such that a 7000-pound charge, when melted, was even with the door sills. The furnace was charged as shown on the charge sheet, Fig. 10, the large pieces being placed on the hearth and the cavities filled with punchings. Similar layers were added until the furnace was charged. A heavy steel plate was placed inside the furnace to prevent the charge from sliding onto the sills until melting had been started. The rear, or operating door, was banked up about 10 inches with a cement made of white sand and sodium silicate. The cement was placed on to a thickness of about 12 inches. A ½-inch plate was slipped in behind the door jamb castings on the furnace to support the weight of the metal pushing against the 10-inch dike of sand. The pouring spout was built in a different manner as it was necessary to be sufficiently low to pour and yet hold the bath of steel. A 3-inch dike of the rammed mixture was placed across the pouring spout and was supported from behind with clay bricks. The clay bricks in turn were supported by about 10 inches of rammed sand and cement. This was placed in position the night before to assure a perfect set.

Fig. 5 clearly illustrates the method of placing the heads. A view of the wheel being machined on a 16-foot boring mill is shown in Fig. 8, while Fig. 9 shows the wheel attached to the spider and ready to ship. The wheel and the spider weighed 25,000 pounds, the spider being of cast iron. The wheel itself weighed 13,300 pounds. The diameter of the wheel was 13 feet 8 inches while the face was 18 inches. The thickness of the section was in proportion. After the

Increases Capacity

IN AN article describing the new electric steel foundry of Dibert, Bancroft & Ross Co., Ltd., New Orleans, that appeared in the April 3, 1924 issue of IRON TRADE REVIEW, *the statement was made that "heats as large as 18,000 pounds" have been made in an electric furnace having a rated capacity of 3 tons. In view of the interest aroused by this assertion, the accompanying explanation of how the furnace was altered to provide 9 tons of metal is timely.*



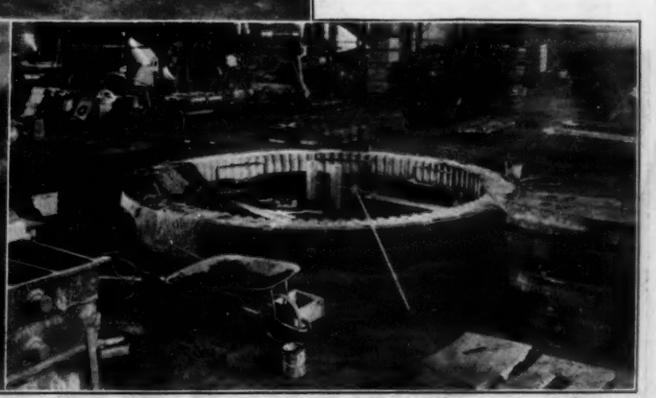
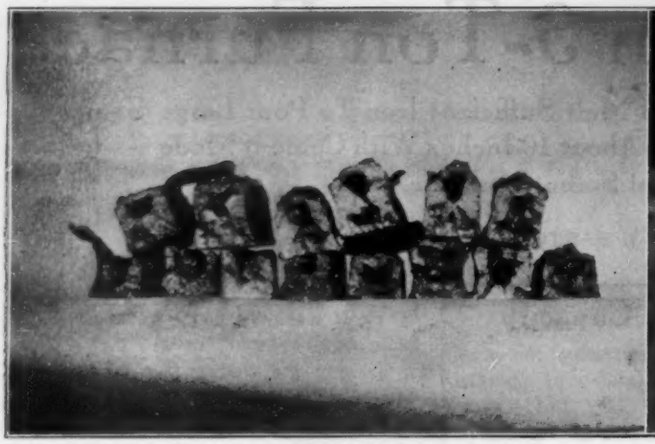
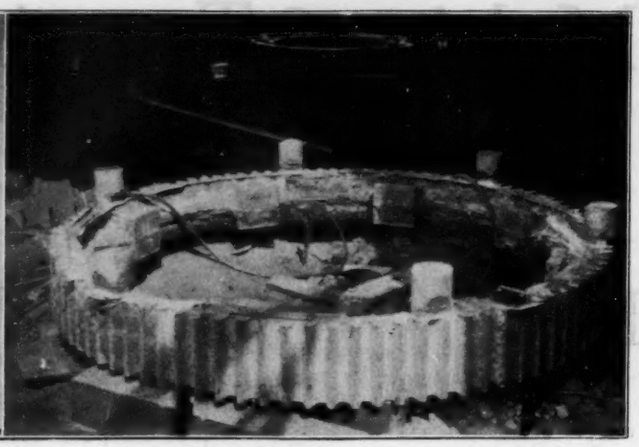


FIG. 1—ABOVE—METHOD OF SECURING MOLD WITH FIRST SET OF WEIGHTS IN PLACE—FIG. 2—LEFT—A GEAR SEGMENT MOUNTED ON A SPINDLE WAS USED—FIG. 3—RIGHT—ADDITIONAL CORES WERE USED TO MAKE THE INNER FACE





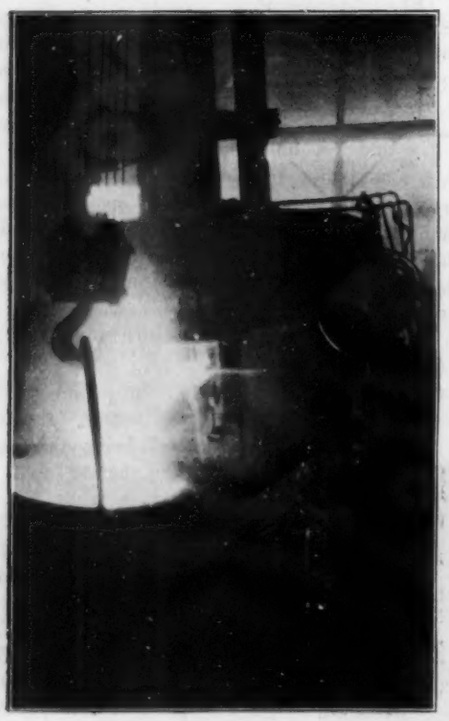
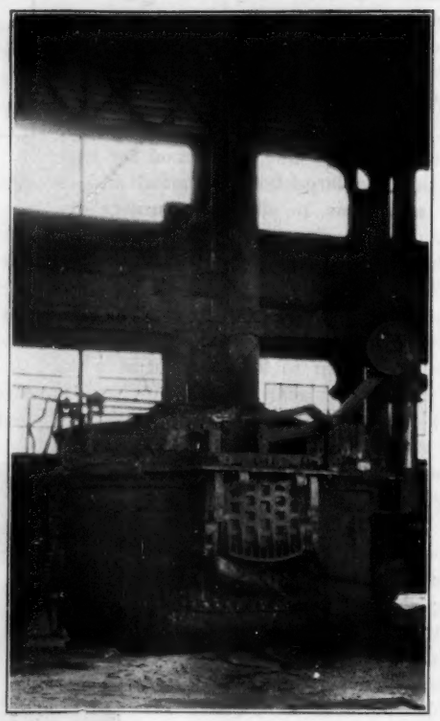
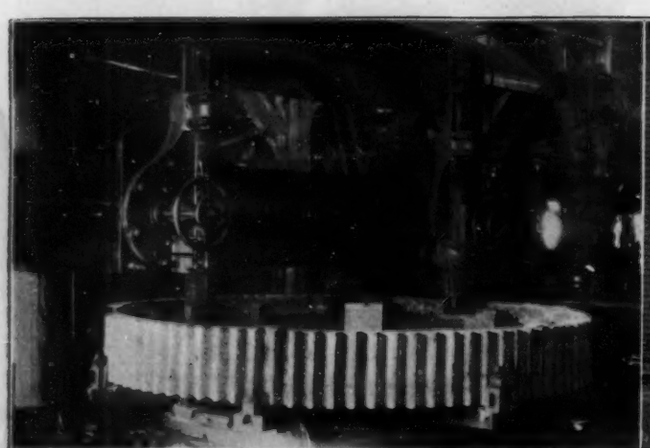


Fig. 4—Upper Left—Numerous Tests Were Made During the Melt—Fig. 5—Upper Right—View of the Gear Wheel Partly Cleaned—Fig. 6—Left—The Electric Furnace Pouring Metal Into the Ladle—Fig. 7—Right—A View of the Electric Furnace Used—Fig. 8—Lower Left—Machining the Wheel on a 16-Foot Radial Boring Mill—Fig. 9—Lower Right—The Wheel and Spider Weighed 25,000 Pounds





casting was poured, considerable manipulation was required to dig out the center sand so that the shrinkage would be taken up with no chance of cracking. The total shrinkage was a little over 3 inches, and when the wheel had cooled no cracks could be found. The gear wheel was ½ inch out of round, requiring but little forcing to fit the spider. Exactly 8 days were required from the time the order was received until the finished casting left the shop. The wheel was propped in a steel gondola hauled to the river and conveyed to Cuba by boat. A heat of this size represents about the absolute capacity for a 3-ton furnace, due to the difficulty of heating the lower sections of the bath without burning the roof or the walls.

Electric Furnace Heat Sheet

Heat No. 476 Date 2/1/24

Hours from roof 169 Lining 476 Bottom 476

Condition of roof Lining Bottom

Specification C Mn Si P S

Steel Made: C Mn Si P S

CHARGE	WEIGHT	SLAG MATERIAL	WEIGHT
Pig Iron		Lime	
Scrap Cast		Lime Stone	
~~Steel Turnings~~ Bolts	7500	Shells	
~~Steel Turnings~~ Punchings	3000	Floorspar	
Plate Scrap	2500	Sand	
Shop Scrap	4000	Ground Coke	
Ferro Manganese	170	Magnesite	
Ferro Silicon	68	O H Slag	
		Electrodes	
		Ore	
Total	17238	Total	

Current on 7 00 AM Current off 10:35 Total Time 3:35 Time Ton

Meter after 1085500 Meter before 1081000 Total KWH 4500 KWH Ton 522

Delays and Causes:

A TOTAL OF 17,238 POUNDS OF SCRAP WAS CHARGED

Tool Steel Is Annealed by Electric Method

The Columbia Tool Steel Co., Chicago, has completed and placed in operation a new electric annealing furnace installation. After some experimenting it was found that this process offered advantages and was practical. All tool steel now produced by the company is being treated by the new method. It is claimed that the bar produced is of unusual uniformity and that any or all parts of the steel so treated will respond uniformly to final or hardening heat treatment.

Co-operates in Training Gas Welders

Because of the lack of trained oxy-acetylene welding operators, the Gas Products association, Chicago, through its educational committee, is co-operating with trade schools in the establishment of systematic training. The committee has prepared an outline of instruction covering 24 lessons and 24 shop exercises, furnishing lecture topics, suggestions for shop work and examination questions. Schools using the equivalent of this course are placed on the accredited list of the association. Students are secured for the schools and jobs are secured for the students. In addition, the services of a large group of welding experts are put at the disposal of instructors. Recently the association announced that copies of the course of instruction could be obtained by individual companies wishing to train their own welders. It will also co-operate with companies in conducting joint schools. The educational department of the Gas Products association has been organized for less than a year but it already has been of considerable service to welders and employers. At the same time schools have been glad to receive the co-operation of the society as the oxyacetylene welding trade is so young and has grown so rapidly that only meager information is available.

The petition of workmen's compensation insurance companies operating in Wisconsin for permission to increase premium rates 15 per cent as of May 15, 1924, has been granted by the state compensation insurance board, in view of the heavy increase in the number and severity of industrial accidents since the former schedule was authorized three years ago.

The sales and advertising departments of the National Association of Farm Equipment Manufacturers, 608 South Dearborn street, Chicago, will hold their next meeting, June 11, at the Great Northern hotel, Chicago.

Log of Heat Where Large Charge Was Melted

Charge 17,000 pounds of clean, selected scrap, the higher carbon metal being charged on the hearth so that the rising carbon could be taken as an indication as to how melting was progressing in the lower layers of the charge.

7:00 a. m.—Current on at high voltage.

8:40 a. m.—Good sized pool in center of furnace. The metal has melted from the top, leaving a ring around the walls about 1 foot thick, with raw scrap over 2 feet deep underneath the bath. Metal test taken shows a very low carbon as was expected. Estimated at about 0.04 per cent carbon.

8:45 a. m.—The long arc offers too much radiation, the walls and roof beginning to drip. Changed current over on to the low transformer tap.

8:50 a. m.—Slag very thin, but a fair green. Added five shovels of old molding sand. Metal test shows carbon picking up as pool digs deeper.

8:55 a. m.—Slag excellent, thin and foaming. Metal gaining in carbon, and becoming more solid.

9:05 a. m.—Metal coming up better.

9:15 a. m.—Carbon increasing; metal more solid, with a better crystalline structure.

9:25 a. m.—Fine metal test. The heat has penetrated to the lower layers and the bottom scull is just beginning to melt. Conditions heavily reducing, with a perfect green yellow slag.

From this point to 10:05 conditions about the same, with but a very light scull in the test spoon at the latter time.

10:10 a. m.—Metal pours clean from the test spoon. All conditions within furnace perfect. Metal estimated at 0.28 per cent carbon. Silicon beginning to reduce slightly.

Tests taken every five minutes to 10:25 a. m. show constant carbon; silicon picking up slowly, but regularly as can be seen by the oxygen blows. Silicon estimated at from 0.15 to 0.20 per cent.

10:30 a. m.—Perfect conditions; metal fairly cold, but considered hot enough to tap. Changed furnace over to high voltage, and added manganese, the ferroalloy being added in good sized lumps and well moistened. The slag is now a perfect color, and texture, but is thickening rather fast. Started to dig out the dike around the spout. This was accomplished by first digging away the outer layers of the cemented sand, and exposing the bricked wall. The center brick was removed with a hooked bar, then the side bricks until all that was left to hold the metal was a 4-inch dike of the cemented sand. The current was shut off and the electrodes raised. A sharp pointed bar was used to break through this dike, in a similar manner to tapping an open-hearth furnace or a cupola. As soon as the metal began to flow a heavy bar was rammed into the wall and the steel poured out. As soon as the first rush of the flow had spent itself the furnace was tipped in the regular manner.

10:35 a. m.—Furnace emptied. The metal when poured was extremely hot on the upper furnace layers, and rather cold underneath, but so mixed in the ladle that a temperature of the required point was attained.

The metal was poured from a bottom pour ladle equipped with a 2½-inch nozzle. The steel poured perfectly and laid absolutely smooth in the mold. Approximately 200 pounds of scull was left in the ladle after the pour.

A heat of this size represents about absolute capacity for a 3-ton furnace due to the difficulty in heating the lower sections of the bath, without burning down the roof and walls. In this particular instance the walls were of silica brick, while the roof was of first quality clay shapes.

Large Uses of Steel In Small Ways

LARGE quantities of steel are constantly and almost unconsciously carried around by the American public. Eyeglass cases, pins, keys, buttons and shoe tacks make up in the aggregate a heavy tonnage of steel.

Tacks which are here considered are extensively used in making shoes, automobiles, and furniture, and for general household needs. Altogether about 75,000 tons of tacks are produced in this country in a year and the demand gradually is increasing. Changes of style and new customs have a strong effect on the tack industry. Thirty years ago carpets were used extensively and accounted for a heavy tack consumption. Increasing use of rugs has meant loss of this attractive demand, but in its place has sprung up demand from the automobile industry. Variations in furniture design constantly cause fluctuations in tack consumption. This is also true of shoe designs where the use of rubber heels has shortened the average length of heel tacks nearly 50 per cent.

Tacks, although usually smaller than nails, are chiefly distinguished by their method of manufacture. Nails are a wire product but tacks are sliced off flat strips of steel known as tack plate.

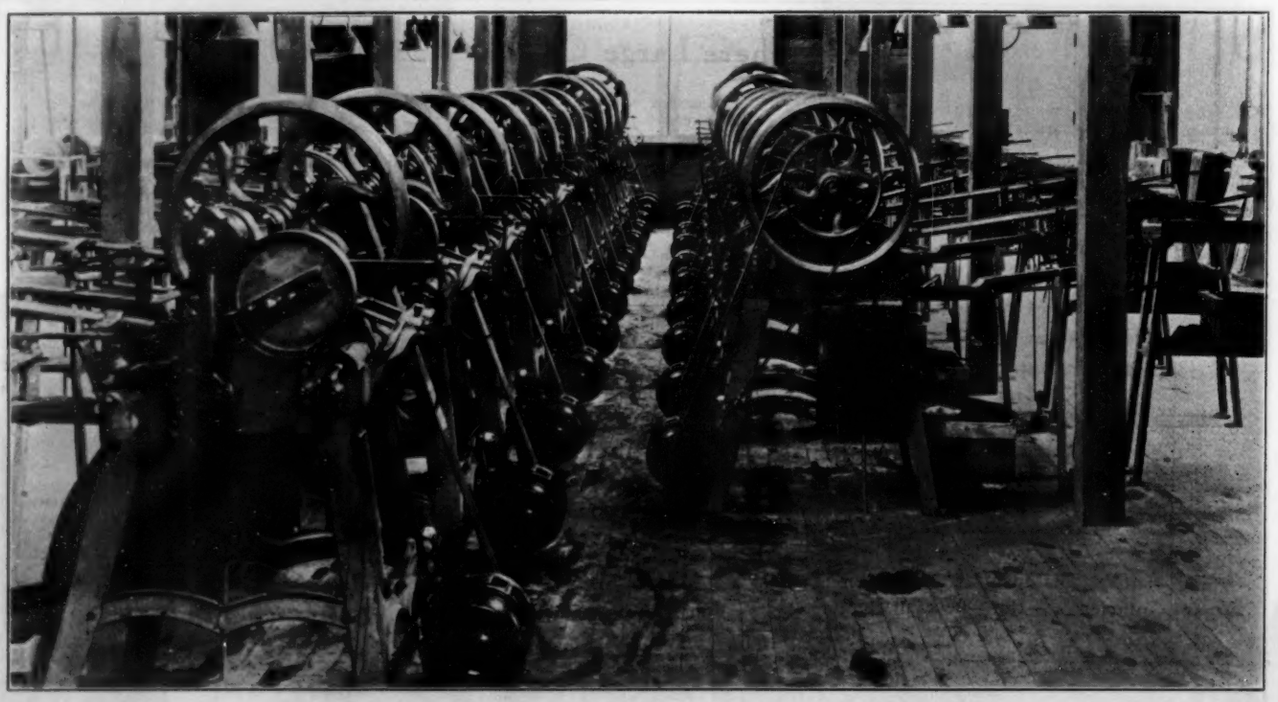
Tacks

THIS is the fourteenth of a series of articles dealing with some of the thousands of obscure uses of steel which in the aggregate go a long way toward absorbing the great American tonnage, and in proclaiming steel the universal metal. The first article on "Corsets" appeared Nov. 22. Other articles were "Pins," Dec. 6; "Pens," Dec. 20; "Cotton Ties," Jan. 17; "Steel Wool," Jan. 31; "Toys," Feb. 14; "License Plates," Feb. 28; "Spinning Rings and Travelers," March 13; "Hypodermic Needles," March 27; "Card Clothing," April 10; "Shoe Steel," April 24; "Tie Plates," May 8; and "Crushed Steel," May 22.

The typical tack machine is an ingenious device. It was invented and perfected between 1806 and 1815 and apparently the work was so well done that inventors and engineers ever since have failed to alter materially the original design.

Steel tack plate is received in flat sections 30 to 40 inches wide and 36 inches long and of thickness to suit the sizes of tacks to be made. These plates are cut into strips of width corresponding to the length of the tack. The tack machine slices wedge shaped pieces from the end of these strips and holds each piece while a blow on the large end upset sthe required head. In order to make it possible to cut wedge shaped pieces continuously from a rectangular strip, the strip is turned from one side to another between each slice. The edge of the cutting tool is set at half the angle of the wedge which is to be cut. The first cut is a waste piece, but turning the strip doubles the angle of the next cut and produces the proper tack wedge. The upper cutting tool is divided into two knives which descend together until after the wedge has been sliced from the strip. At this point the downward travel of one section is halted while the other

(*Concluded on Page* 1504)



MACHINES DRIVEN BY INDIVIDUAL MOTORS PRODUCING TACKS AT RATE OF 300 PER MINUTE

Selling Practices Are Analyzed

Taking Iron and Steel Orders Merely To Keep Mills Operating Is Demoralizing to Trade—Buyers Should Show Greater Respect for Contracts—"Dumping" of Off-Grade Material Drawback to Business

BY ERNEST T. WEIR

SECURING a profit from the operation of business is fundamentaly because no business can prosper and develop and be a valuable asset to the country at large unless its operation is carried on at a satisfactory profit. This means not only paying to the owners a fair return on their investment, but also providing a surplus for improvement and development. I think this is particularly true of the steel industry, which requires such large expenditures for new construction to take care of the increasing demand, and for reconstruction to meet the new developments and improvements that keep the industry up to date.

To insure a proper profit in our business necessitates efficiency in the manufacturing end, and selling our products at a price higher than the total cost including all overhead, interest, depreciation, etc. With the majority of the steel companies operating now, there is a general efficiency in the operating and production departments of the business. I believe that as a rule the executives of the companies give constant and detailed attention to this branch. Costs are carefully scrutinized, production fluctuations carefully considered and the keenest competition established between different plants of the same company.

There are the constantly changing problems in the manufacturing end, the new requirements, the improvements regularly being made that increase the tonnage, or reduce the cost or improve the quality. Then there is always before us the tangible, visible thing in the great mills that keep alive the interest and stir the imagination. For these various reasons the executives as a rule devote more time and thought and personal interest to the question of manufacturing than they do to the problem of the merchandising of the product of the mills.

I believe in the first place that we executives do not give sufficiently detailed attention to the matter of sales; we put too much pressure on our sales managers to secure business and do not stress sufficiently the necessity of making a profit on every sale. Some sales managers point with pride to the fact that their plants are operating either full or beyond the average percentage of the whole industry, and pass over very lightly the fact that earnings are small or invisible. Their task apparently is finished when the mills are supplied orders, not profits.

The time is here when the fundamental reason for the existence of our business, that is to make a profit, must be considered on every sale, when the executive must himself see that the sales manager shoulders his share of this responsibility and only pats himself on the back when the order book is fat with profitable orders and not simply with orders for tonnage only.

Executives Are To Blame

For this lack of constructive policy on the part of our sales people, the executives are to blame. In our anxiety to keep the wheels turning, we hammer the sales manager for orders, not profits. We seem to assume most naturally in our industry when demand drops off and operations decrease that we must immediately reduce our prices and go out and buy business, and that during these depressed periods we are justified in worrying along without profit. I don't believe this is sound business, for when production decreases, costs advance, and lower prices as a rule mean losing prices.

Because we are down to a 50 or 60 per cent basis is no good reason why we should lose money by selling at a low price.

I believe that our business should always make a reasonable and regular profit; not an exorbitant one in some years, with a loss in others; not an average, but a regular profit. When prices are advanced to a point too high, we all know from our experience that they will go just that much too low. None of this is good for any of the interested parties, the manufacturer, his employe, or the buyer, or the ultimate consumer. What we should strive for is regular earnings and such as our investment and responsibilities demand.

Therefore let the executive take the responsibility of fixing the prices for the sales department and let him fix these prices based on his cost plus a fair and reasonable profit. Do not insist on the sales manager furnishing orders to operate the mills 100 per cent when the general businesss is on a 70 per cent basis.

All buyers are receptive to talk about your quality and service, but we in the steel industry seem to think that his only interest is price, and naturally Mr. Buyer encourages you in that belief. Our sales people should be educated into a thorough knowledge of the products they are selling and as their knowledge of this expands, they will find the buyer easier to talk to and more interested in the quality and service. One great trouble is that too many of our sales people know nothing to talk of but price, and that with the astute buyer leads as a rule to cut values.

I think often that we give our salesmen too much jurisdiction in the matter of prices. This may not be so dangerous with the salesman who knows his business through long experience and has some practical knowledge of the products he is selling, but with the general run of salesmen it is a dangerous and unprofitable method. By such laxity we invite the salesmen to be overcredulous of the statements of the buyer about the price he can secure, for the salesman wants the order and when all he has to do is to report that he simply met competition and repeat what the buyer told him, he consequently does not have to work overtime to convince the buyer that his service and quality and price combined justify his receiving the order. Don't let our sales department degenerate into order takers, let us make them salesmen who sell *quality, service* and who secure a profit on the sale. The only man who is worthy of the name, salesman, is the one that remembers this and puts it over.

Some executives say they do not have time to attend closely to the facts necessary to oversee and control their sales department. I know by experience this is not correct, because the president of one of our greatest corporations finds time to do this and do it regularly. I believe that the executive of every company should have the time and system to know

Abstract of paper read before American Iron and Steel institute, New York, May 23. The author is president, Weirton Steel Co., Weirton, W. Va.

what both his sales and operating departments are doing. After all, his is the final responsibilty and he accepts this when he takes the job; and if he does it right he must devise ways and means of knowing always what is going on and then of being the court of decision at all times.

Our sales people are too prone to believe unauthenticated reports about prices and terms, and in the haste of the moment and in the pride of their company's ability to meet the lower price, fall for false statements. Stop, look and listen, is a good policy at all times.

Sales Contracts Violated

Another matter that is of great importance and should have the serious consideration of the entire industry is the laxity with which our sales contracts are treated. It is a well known fact now that contracts covering the sale of our finished materials are really nothing but options that the buyer can exercise or not as he sees fit; whereas they are a definite binding obligation on our part to supply a fixed tonnage at a fixed price if the buyer so demands. While in our contracts there is nothing that guarantees prices against decline, nor relieves the buyer from the necessity of taking his purchased tonnage, yet it has become an implied fact that, if the price of the commodity declines during the term of the contract, we immediately reduce the price and the buyer, as a rule, will refuse to specify the tonnage unless we meet this condition.

Under present methods of sale the buyer is always pressing for lower prices, whereas such would not be the case if he had to carry out his contracts at the contract price. For this condition, we manufacturers are alone responsible and it is causing the steel industry many millions of dollars in losses. Take, as an example, the way in which it affects the tin plate manufacturer. In November he sells his product for delivery up to July 1 of the following year, thus obligating himself for practically eight months ahead. If he covers himself on his tin requirements in order to make sure that under all conditions he can supply the material for which he is obligated and within a few months the price of tin plate declines through weakness of the pig tin market, he must reduce his price and he is left high and dry with an accumulation of high priced tin, which he purchased solely to protect deliveries of the buyer against an actual bona fide contract, and yet he is the one who has to take the loss. If when selling his product in November he does not cover himself on his tin requirements against his sales and the price of tin advances 10 cents a pound, which it frequently does and consequently strengthens up the tin plate market, then he has to buy the higher priced tin and take his loss, because of course he cannot ask the buyer to pay him more money. In other words, we live up to our obligations both in tonnage and price, but it is a one-sided arrangement and the buyer fails to live up to his.

It is a further fact that on any of the various materials which we all purchase we have no such protection as we afford to our buyers, but religiously live up to our obligations at the price at which we purchased or contracted.

One of the worst things about this failure to observe the sanctity of the signed contract is that it unquestionably tends to weaken the fundamental morality of our business. There is one great exception to this condition, and that is among the larger oil companies: they still adhere to the policy of fulfilling their contract obligations, and I yet have to hear of the first case in which they asked for reduction in price, no matter where the market goes. They purchase from you, sign the contract, take the material out and pay the contract price. If they can do it, why can't other buyers?

Analyze Statements of Profits

I would like to recommend that our sales departments be carefully advised as to the real facts surrounding the issuing of earning statements of the larger companies, when such statements are made public.

For some reason the practice is to give out gross earnings; that is earnings before deduction for interest, depreciation, depletion and so forth. The public generally fails to analyze these statements, consequently the gross figure becomes fixed in their minds as the one that represents the earnings available for dividends and development; consequently they have an exaggerated idea of the earnings of the steel industry.

One of the largest customers of our company recently made the statement to one of our district sales managers that, based on the Steel corporation's last statement, the profits of the steel industry were entirely too great, and he took the gross figures for last year as the basis for his statements. This was reported to our general office, and we sent out a complete analysis of the figures showing the net earnings per ton, which satisfied him after analysis that the earnings per ton were nothing more than normal. The steel industry and its situation is always of such great interest to the buying public that it is always important that they get not only the correct figures, but the correct impression; and for this reason it has seemed to me that it would be better if, when statements of earnings are made, the net figures be the ones that are emphasized and not the gross earnings. If for some reason this cannot be done, then the sales department should be instructed in the detailed analysis of the report, so that the net profit can be worked down to the amount per ton of ingots produced.

Off-Grade Product a Problem

There is hardly a line but has its off-grade product problem today. The tonnage produced in these off-grades is so considerable as to have become an important factor in the profit question. For instance, in tin plate it is estimated that between 4,000,000 and 5,000,000 boxes per annum, or approximately 10 to 12½ per cent of the total production, is stock accumulation and sold from the stock sheets at varying prices, but always materially under the price of prime product.

We are all familiar with the importance of the production of seconds and off-grade material in mills manufacturing pickled finished sheets for various purposes. The accumulation at times becomes so great as to be very burdensome, and then the material is marketed and simply dumped at prices even below that of one-pass sheets and the consequent loss is very heavy. The same condition applies to every line that produces off-grade products.

In the earlier days, when this question was not so serious and the production of these off-grade smaller in proportion, they were not given much consideration by the sales department and as a rule were turned over to middlemen at any price that could be secured. As the tonnage has increased the attitude of the sales department has not changed, and the tendency is still to dump these accumulations in order to get rid of them and not to make the proper effort to merchandise them on a basis that would give a fair return.

It frequently is said in connection with tin plate, sheets and strips, "Oh, well, this is simply stock accumulation and we had better get rid of it in order to clean the material up."

The term "stock accumulation," has become a misnomer, because all of this tonnage is actual production and should be so considered; and a proper effort made to merchandise, not dump it.

(*Continued on Page* 1504)

Standardizing Tool Data Sheets

Form Approved by Association Provides for Uniform Arrangement of Data for All Kinds of Machines and Auxiliary Tools — Its Use Simplifies Installation, Production and Maintenance Work

BY A. L. EVANS

UNTIL recently practically every machine tool builder employed a different form for imparting to the users of his machines the data necessary for the intelligent operation of the machine. In many cases in planning, routing, designing, equipping tools, making time studies, changing factory layouts and performing similar tasks, the production engineer found it necessary to search for the necessary information in a cumbersome mass of catalogs, blueprints, instruction sheets, etc. The information not only was difficult to interpret, but it was presented on sheets of different size so that it was almost impossible to properly file the required information.

In order to simplify this work, the author has devised a series of standard data sheets which cover many types and sizes of machine tools and machine accessories. These data sheets, examples of which are shown in the accompanying pages, provide all of the information required in performing the duties outlined above. The data are definitely tied up to the builder's serial numbers and the sheets are arranged to be filed in a loose leaf binder of standard size. The full size of each sheet is 11 x 17 inches, a size chosen because it is convenient to handle and affords ample space on which to compile the required information without crowding. The sheets can be filed flat in a standard loose leaf binder, as shown in Fig. 1, or can be folded into letter size.

As shown in Figs. 2, 3 and 4, the standard sheet has a ¼-inch margin outside of the border except on the left end where a 1-inch space is left for binding. The title of the sheet, builder's name and location, builder's serial number, trade name and description of the machine tool and the user's machine number are provided for in a ruled section at the top of the sheet. The drawing number, date and other details are shown at the bottom. A noteworthy feature is that the data are arranged in a manner uniform for all types of tools. A complete record of the installation is given in the top left-hand corner. Front and end views of the machine are shown in the center of the sheet, the dimensions of the general range of the machine being given. Details of the spindle and spindle nose, of the turret and other parts where necessary, are shown above the drawings of the machine proper. Details of tables, bases, cross slides, tee slots, etc., are shown below.

A floor plan drawn on a scale of ¼ inch to the foot is given at the bottom of the sheet. In this plan the location of the drive pulley is indicated and the horsepower required and the weight of the machine are stated.

Among the items under the heading "Machine Description," is a table of available spindle speeds in revolutions and feeds per revolution of spindle. The positions of levers and belts are shown but if conditions warrant, a table is given showing the changed gears desired for feeds or speeds.

The numbers of all machines in the plant of the make and size for which the sheet is made may be recorded in the space provided under the heading "User's Machine Number," or one sheet can be used for each machine.

Engineers or millwrights engaged in installing machines and equipment will find the standard data sheet of great benefit because it contains a complete record of installation, showing for belt-driven machines the speeds and diameters of line and countershafts, the sizes of pulleys and belts and for motor-driven machines, a record of the motor, sprockets, chains, gears and other details.

It will be readily appreciated that this information arranged in standard form eliminates considerable loss of time that would be used in checking pulleys, belts and other details when machinery is moved or first installed. Moreover, it creates definite standards in regard to pulleys and belts and tends to standardize machine tool conditions in regard to power and speed. For ex-

Machine Tool Builders Adopt Form

IN THE report of the general manager, E. F. DuBrul, at the spring convention of the National Machine Tool Builders' association at Buffalo, May 22, substantial progress in the movement for a standard machine tool data sheet was announced. Mr. DuBrul explained that at the last convention the association endorsed the principle of having a standard form to contain the data that a user of a machine tool has a right to expect from a builder. A committee, consisting of H. M. Lucas, president, Lucas Machine Tool Co., Cleveland, and E. P. Burrell, director of engineering, Warner & Swasey Co., Cleveland, was appointed to consider a standard. The form submitted by A. L. Evans, which is explained in the accompanying article, was approved by the committee and has been definitely adopted by 17 machine tool builders.

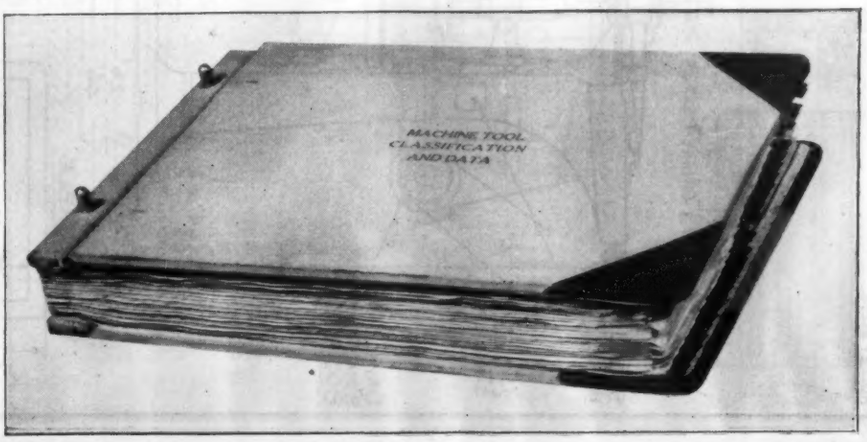


FIG. 1—THE DATA SHEETS CAN BE FILED IN A LOOSE LEAF BINDER OF STANDARD SIZE

The author is industrial standardization engineer, 637 Penton building, Cleveland.

MACHINE TOOL STANDARD DATA SHEET

BUILDER'S NAME: THE AVEY DRILLING MACHINE CO. CINCINNATI, OHIO, U.S.A.

BUILDER'S SERIAL NUMBER

MACHINE DESCRIPTION: AVEY-7½ OVERHANG 3 SPINDLE-No. 2 DRILLING MACHINE

USER'S MACHINE NUMBER

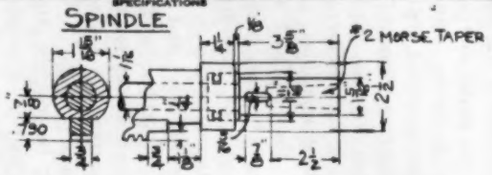
INSTALLATION

LINESHAFT R.P.M. _____ DIAM. _____

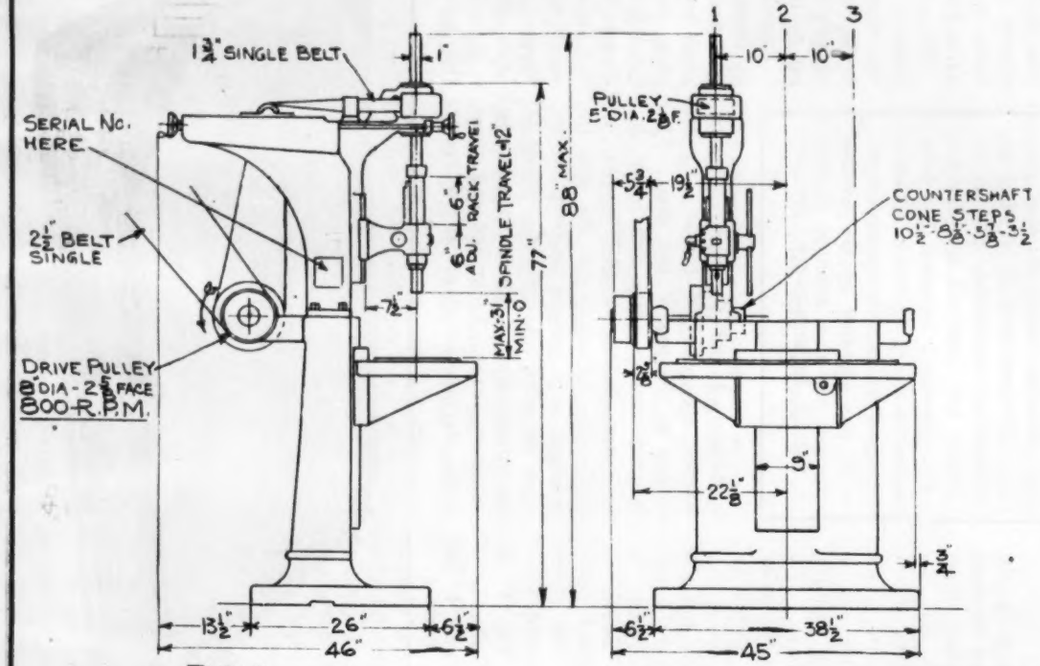
PULLEY SIZES _____

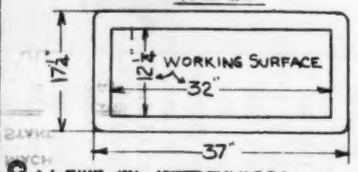
SPECIFICATIONS

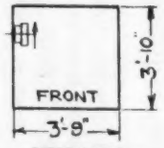
SPINDLE



ATTACHMENT	SPINDLE No.
POWER FEED	
TAPPING	



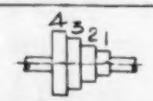




FACTORY LAYOUT

SPEED AND FEED TABLE

DRILLING SPEEDS PULLEY 800 R.P.M

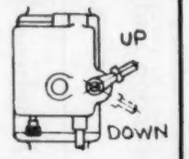
CONE STEP	R.P.M	COUNTERSHAFT CONE
1	560	
2	940	
3	1300	
4	1680	

HAND FEED FURNISHED ON STANDARD MACH.

POWER FEEDS PER REVOLUTION OF SPINDLE USING POWER FEED UNIT

CONE STEP	AMOUNT	SPINDLE CONE
1	.003	
2	006	
3	009	
4	.012	

TAPPING SPEEDS USING TAPPING UNIT

CONE STEP	R.P.M	LEVER POSITION	
1	147.4	UP	
2	247.4		
3	342.1		
4	442.1		
1	560	DOWN	
2	940		
3	1300		
4	1680		

CAPACITY 7/8-INCH

© A. L. EVANS - 1924. ADOPTED BY N.M.T.B.A.

FLOOR PLAN ¼ IN.--1FT. | HP. 1½ | WT. 2300 | DR. BY A.L. EVANS | DATE MAY, 24 24 | DWG. NO.

MONARCH VELLUM E. K. ELLIOTT CO.

FIG. 2—REPRODUCTION OF STANDARD DATA SHEET WITH INFORMATION FOR A DRILL PRESS

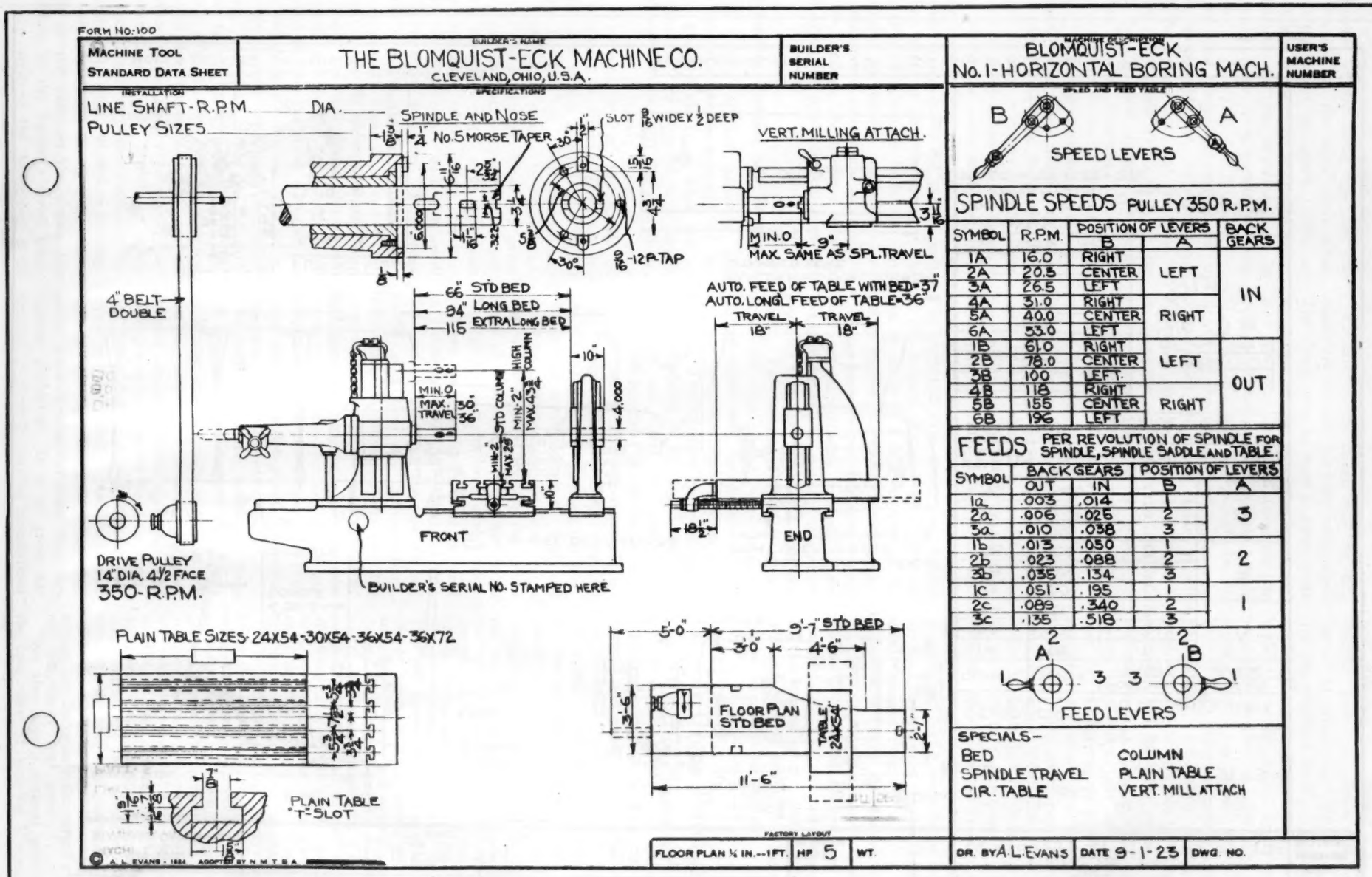


FIG. 3—NOTE THAT THE SPEEDS AND FEEDS ARE GROUPED CONVENIENTLY AT THE RIGHT

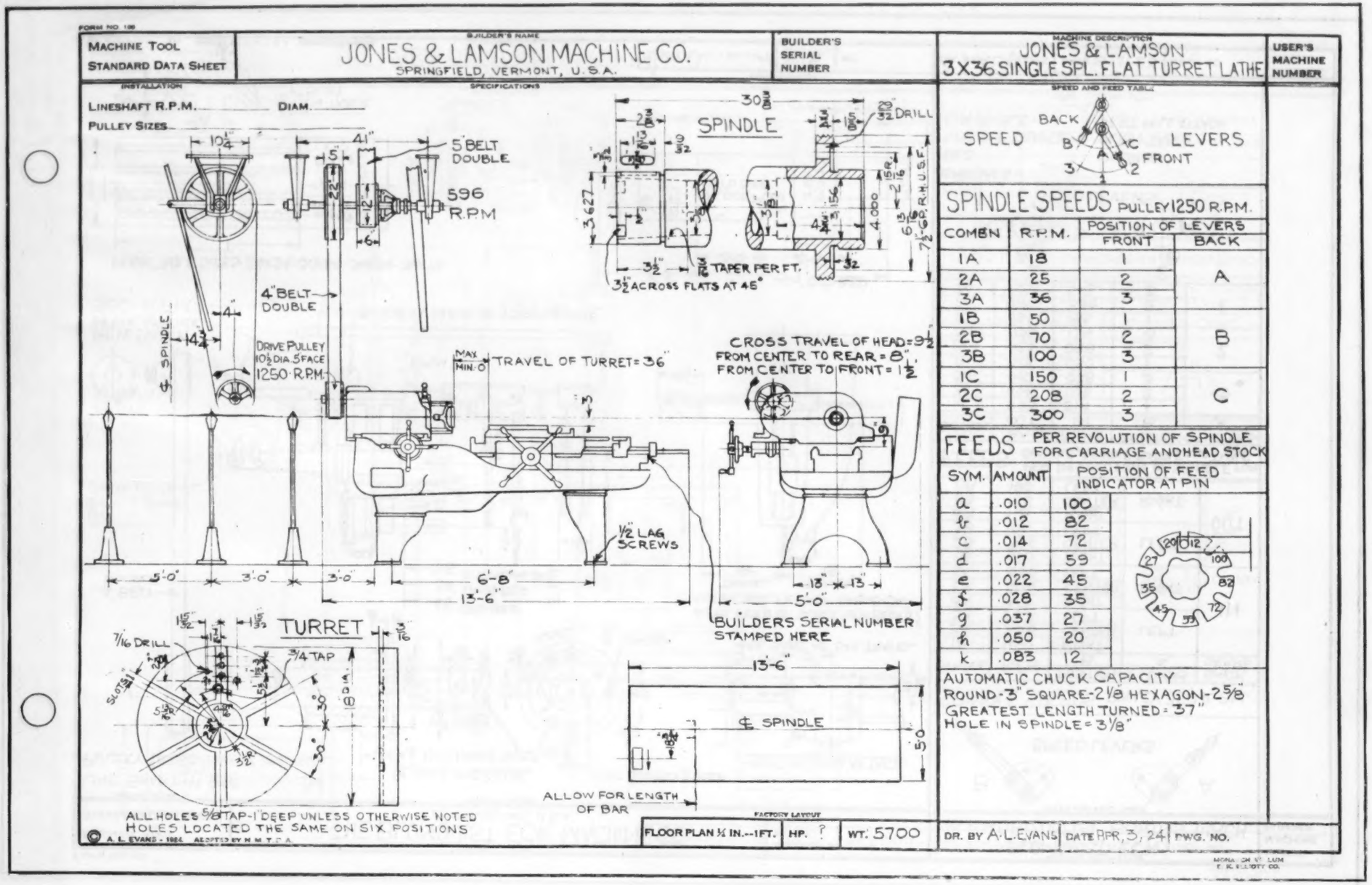

FORM NO. 100
MACHINE TOOL STANDARD DATA SHEET
BUILDER'S NAME
JONES & LAMSON MACHINE CO.
SPRINGFIELD, VERMONT, U.S.A.
BUILDER'S SERIAL NUMBER
MACHINE DESCRIPTION
JONES & LAMSON
3X36 SINGLE SPL. FLAT TURRET LATHE
USER'S MACHINE NUMBER
INSTALLATION
SPECIFICATIONS
LINESHAFT R.P.M. _____ DIAM. _____
PULLEY SIZES _____
5" BELT DOUBLE
596 R.P.M.
4" BELT DOUBLE
DRIVE PULLEY 10½ DIA. 5 FACE 1250 R.P.M.
SPINDLE
TRAVEL OF TURRET = 36"
CROSS TRAVEL OF HEAD = 9½"
FROM CENTER TO REAR = 8"
FROM CENTER TO FRONT = 1½"
½" LAG SCREWS
BUILDERS SERIAL NUMBER STAMPED HERE
TURRET
7/16 DRILL
¾ TAP
ALL HOLES ⅝ TAP-1" DEEP UNLESS OTHERWISE NOTED
HOLES LOCATED THE SAME ON SIX POSITIONS
ALLOW FOR LENGTH OF BAR
FACTORY LAYOUT
FLOOR PLAN ½ IN.--1FT.
HP. ?
WT. 5700
SPEED AND FEED TABLE
SPEED LEVERS
BACK
FRONT
SPINDLE SPEEDS PULLEY 1250 R.P.M.
COMBN | R.P.M. | POSITION OF LEVERS FRONT | BACK
1A | 18 | 1 | A
2A | 25 | 2 |
3A | 36 | 3 |
1B | 50 | 1 | B
2B | 70 | 2 |
3B | 100 | 3 |
1C | 150 | 1 | C
2C | 208 | 2 |
3C | 300 | 3 |
FEEDS PER REVOLUTION OF SPINDLE FOR CARRIAGE AND HEAD STOCK
SYM. | AMOUNT | POSITION OF FEED INDICATOR AT PIN
a | .010 | 100
b | .012 | 82
c | .014 | 72
d | .017 | 59
e | .022 | 45
f | .028 | 35
g | .037 | 27
h | .050 | 20
k | .083 | 12
AUTOMATIC CHUCK CAPACITY
ROUND-3" SQUARE-2⅛ HEXAGON-2⅝"
GREATEST LENGTH TURNED = 37"
HOLE IN SPINDLE = 3⅛"
DR. BY A.L.EVANS
DATE APR. 3, 24
DWG. NO.
A. L. EVANS - 1924 ADOPTED BY N.M.T.C.A.

FIG. 4—THE SCALE, ¼ INCH TO THE FOOT, MAKES THE SHEET USEFUL IN PLANT LAYOUT WORK

ample, when two or more operators are working on the same operation performed on the same type and size of machine at the same piece price, conditions must be equal. This information in standard form also makes it possible for the department to be operating with a minimum of supplies.

The data sheets also are useful to those responsible for factory layout. The floor plan for each machine is drawn to a scale of ¼ inch to the foot, the size most commonly used for factory layout purposes. The drive pulley is shown in its correct position. This information saves considerable time when making manikins and places machine tools in their proper driving positions on the floor. Since the sheet shows the horsepower and weight of each machine, it is possible to estimate quickly and accurately the loads on the various units of line shafting and the floors. The estimating department finds the data pertaining to speeds and feeds and the information concerning tools which can be used on the machine of value in figuring the production time of any job.

Simplifies Planning and Routing

The work of the planning and routing departments is simplified because guess work as to what size of machine shall be assigned to a certain operation is eliminated. The data sheets contain all necessary data of sizes and a comparison of the sheets of the machines of different sizes will indicate at a glance which is the logical choice for the job. This opportunity for comparison results in quickly assigning the proper machine to a given operation and in maintaining a balanced condition with large work on large machines where great power is likely to be necessary and with small work on small machines where speed probably is the general requirement.

A glance at Figs. 2, 3 and 4 will show that all the dimensions necessary to enable the tool design department to work out details of special tools, jigs and fixtures are given. This means that the designers do not have to go into the factory each time for information and that errors in measurement which often prove costly are largely eliminated. Thus, the time lost through interference with the machine operator while measurements are being taken is saved. Moreover, costly mistakes resulting from obtaining inaccurate data from out-of-date catalogs and specifications are avoided, inasmuch as the data on the sheets are identified by the builder's serial number. In view of the foregoing, it is clear that the time of tool designers is conserved.

Experience has shown that the data sheets are valuable for time study work. The sheets may be used in book form, as shown in Fig. 1 or the speed and feed table may be cut off along the line divided for that purpose to form a table of convenient size which can be attached to the machine to replace the brass speed and feed tables usually furnished by the builder. Often it is necessary to replace the builder's tables because the drive pulley or countershaft speed recommended was changed to make possible a range of speeds to give certain cutting speeds for work routed to the machine. In changing the drive pulley or countershaft speeds, the plate furnished by the builder becomes void and a new plate not only would entail considerable expense but would prove inconvenient. The standard data sheets are flexible in this respect inasmuch as the change can be made in a few minutes by the aid of a slide rule or logarithmic scale.

It has been proved that a time study man can accomplish a great deal more work if he knows without doubt the available feeds and speeds of each machine. For instance, knowing in advance the diameter of work and the cutting feeds and speed per minute, he can determine the revolutions per minute. Then finding the corresponding revolutions in the speed and feed table, he can direct the operator to just what position the levers or belts must be set to give the required cutting speed. Thus, without counting the revolutions or measuring the feed, the proper combinations of feed and speed are obtained on the first try, a feat which is sure to gain the confidence of the operator, which, of course, is a great asset in time study work.

When an instruction sheet is used in connection with time study, a record can be made of the speeds and feeds used for the sub-operations. Therefore, in setting up the job, the foreman or operator knows the lever or belt positions necessary to make the piece in the time specified. The use of data sheets in connection with time study and instruction sheets eliminates the need of written instructions.

In addition to the foregoing there are numerous miscellaneous advantages in having standard data sheets for all machine tools. For instance, when deliveries are late, special tools, jigs and fixtures can be designed from the sheets and made before the equipment arrives in the plant. Auxiliary tool manufacturers are benefited because all guess work is removed from their designing problems. It is of great assistance to them in making installations of their tools as they are able in a few minutes to obtain the proper spindle feeds or obtain the cutting speeds at which they desire to operate the auxiliary tools.

This feature is illustrated in the automobile industry where under present conditions it often is necessary to get axles, motors or other parts of a new design into production within a limited time. Frequently outside companies must be pressed into service to design and make the necessary tooling equipment. In this case, the data sheets save much time that would be lost in taking measurements of the machines on which the tools are to be used. They save many costly alterations when installations are made.

The importance of definitely tying up the data of the individual machine with the builder's serial number cannot be over-emphasized because the improvements made from time to time in each succeeding model otherwise would cause confusion.

There can be no question of the real need for standard data sheets in the plants of builders, dealers and users of machine tools and auxiliary parts. In the opinion of the author their use will save several million hours annually in the metalworking industry.

Hoover Urges Purchase of Coal in Summer

Secretary Hoover has sent letters to national and state trade associations asking that coal consumers aid in maintaining traffic equilibrium by storing coal in the summer months. The letter states:

"During 1923 the railways through the co-operation of the manufacturing and distributing trades and the coal operators and distributors were able to handle the national coal traffic in a most efficient manner without car shortages. This was accomplished to a considerable degree by co-operation among the trades for the purchase and storage of coal during the summer season. As you are aware, the great danger point of traffic congestion is the fall season when the combined crop, winter goods, and household coal movements have always, except through last year's co-operation, combined to create a car shortage.

"The fall car shortage always has the effect of increasing the price of coal and of seriously disturbing the whole economic machine. Security lies in repeating the storage performance of last year, by the manufacturers of the country taking reserves of coal during the months of May, June and July, thus foregoing the necessity of coal shipments during the peak period in competition with the household movement. Outside of strike years, these summer months are universally the period of lowest bituminous coal prices.

"We also have a national problem in the long view of securing cheaper coal

by maintaining more regularity in the production of our coal mines through planning out its seasonal fluctuations. This can only be brought about if the consumers are willing to store coal during the low production season."

Large Uses of Steel in Small Ways

(*Concluded from Page* 1496)

carries through to transfer the tack to holding dies located below the cutting point. These dies fasten tightly about the pointed portion of the blank while a header tool delivers a blow which forms the head of the tack. The dies then open and a knock-out attachment throws the finished tack into a pan or box beneath the machine.

The finished tack from this machine in reality is far from being finished for the trade. It passes successively through bluing ovens, sifters, graders and in many cases coating vats and bake ovens and finally to the weighing, packing and shipping operations.

The usual type of machine working on a small tack, say 500 to the pound, produces 250 to 300 tacks per minute. The total number of machines in operation throughout 1923 is fairly well known and is approximately 3840. From records of one large manufacturer the average machine turned 20 tons of tack plate into tacks during the year which figures 76,800 tons as the total production. This figure checks closely with the estimate of tack plate manufacturers, but is a little under the estimate of the largest tack manufacturers. Accurate records kept by one plant show that each of its machines produced 22½ tons during 1923. This would mean a total general production of 86,400 tons. From this it seems conservative to say that 75,000 tons of tack plate are used in America each year in the production of tacks.

Tack plate is the name given to steel sheets rolled for tack manufacture. Originally these sheets were rolled from iron imported from Sweden but about 1880 a soft steel was introduced in an attempt to effect a saving as Swedish iron at that time was held at about $70 a ton. At first it was necessary to give away the steel plate in order to get manufacturers to try it out, but within ten years the importation of Swedish iron for tack plate use had been reduced to a negligible quantity.

Plans for a comprehensive scientific study of hygienic conditions in industry are being prepared by the industrial hygiene division of the New York state labor department.

Conference Board Holds Annual Meeting

Business leaders from all parts of the United States gathered in New York May 15 to discuss the latest trends in industry, at the annual meeting and dinner of the National Industrial Conference board. The members and guests of the board were addressed in the evening at the Hotel Astor by Dr. Nicholas Murray Butler, president of Columbia university, on "The Relation of Government to Private Business Enterprise."

After an executive conference for members only at 10 o'clock, the formal forenoon session was devoted to a discussion of the board's current research studies, such as wages, hours of work and employment, cost of living and wages, the building situation, works council movement, the tax burden in its relation to industry, and engineering education and industry. The afternoon session was devoted to a discussion of trade association activities. "The Constructive Functions of Trade Associations" was the topic of Fayette R. Plumb, a prominent manufacturer of Philadelphia.

"Men cannot be made rich or virtuous by law," Dr. Butler said in his address. "All around us, Washington, our state capitols, in one form of public service and another, there are pitiful examples of low standards, of bad morals, of common vulgar associations and of cheap exploitation of the public service and the public welfare. Can that kind of government, can a government so staffed and manned deal with the grave problems of private industry on the basis of principles? Does not the question answer itself? If government and private industry are to move each progressively in its own sphere, surely they must so move face to face with confidence, with respect and with understanding. The dissatisfaction with existing governments is so great that from one end of this world to the other if the form of government itself is not overturned, the governors have been deprived of authority the first time that the great mass of the people have been able to effect a change."

Wire Fence Galvanized After Being Woven

A new process of galvanizing that is claimed to treble the life of woven wire fence has been developed recently by the Page Steel & Wire Co., Bridgeport, Conn. The new method is called "galvanizing after weaving," and consists of applying to the fabricated product a protecting coating that is five times heavier than that ordinarily used on galvanized fence. Formerly the wire of which fence was made was first galvanized and then woven into fence but due to the fact that a considerable number of mechanical operations were performed, the thickness of the zinc coating was definitely limited.

In the galvanizing after weaving method, the mechanical operations are all performed before the fabric is galvanized, thus permitting the application of an unusually heavy coating of zinc. In service tests, wire is said to have withstood exposure in New England for more than seven years.

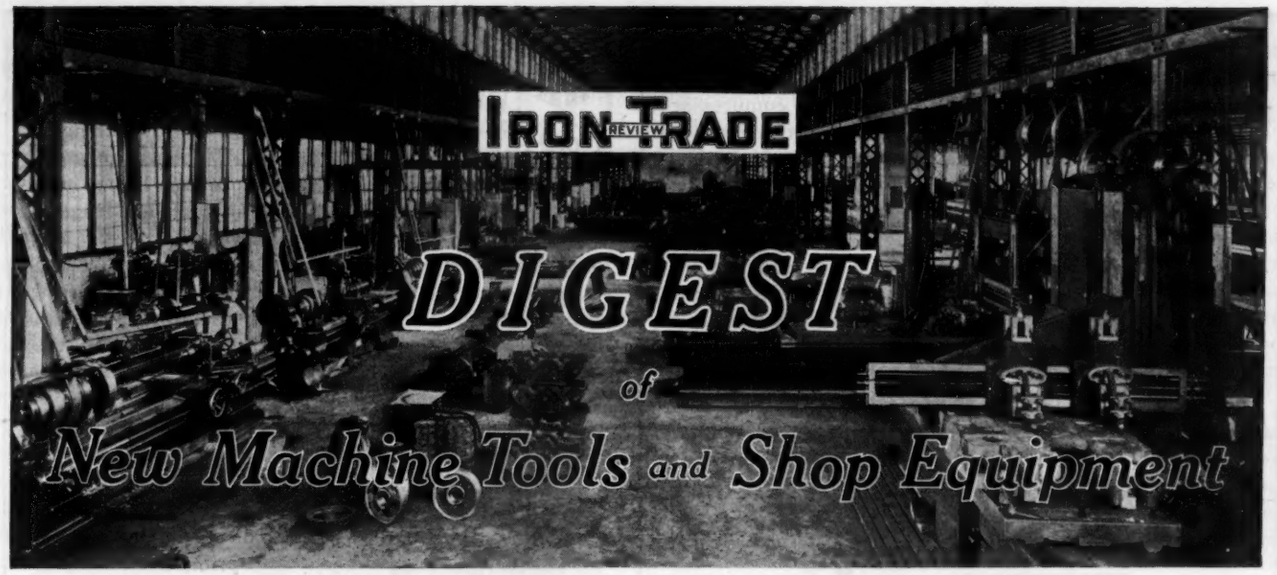
Steel Selling Practices Are Well Analyzed

(*Concluded from Page* 1498)

This is a matter that the executives and sales managers could profitably give close attention to, for the purpose of, in the first place, reducing the production of these accumulations, and a careful survey should be carried on as to why off-grades are produced, and then followed up to keep the production down to a minimum figure.

In many cases we could profitably produce more scrap rather than this off-grade material. There are two reasons for this; in the first place, very frequently we send this material through the mill and all its processes and then sell it at tremendous loss, whereas we would have been better off to have simply scrapped it after the original process. In the second place, these large accumulations have a very direct effect on the price that we can secure for our prime product. Large tonnages of off-grade materials hanging over the market invariably weaken the buyer's ideas of price, and when our sales department offers to him this material at prices dollars a ton under the prime price, he immediately comes to the conclusion that the price for the primes is too high and proceeds to try to beat it down.

This question of trying to prevent the production of off-grade material is of great importance and it offers a possibility of large improvement. Through special investigation, either carried on by individual companies or by branches of the industry, new uses should be developed for these off-grade products, and our sales department should be educated into trying to handle this material on a scientific basis, with the idea of producing a profit out of it. As uses are found for these products it also may be developed that there is a seasonable consumption; and that it pays at times to carry the stock into the period when there is the best demand, rather than to try to force it on the market when there is no proper consumption going on.



Extend Scope of Automatic Tools

Multiple Spindle Principle Applied to Chucking Work — Lathes, Shapers and Boring Mills Embody Some New Details of Design — Work Handling Equipment Improved — Portable Air Compressors Introduced

ACTIVITIES of the manufacturers of a product always cast an influence on the users of that product. For this reason it is unfortunate that the thousands of large users of machine tools could not have been present at the spring convention of the National Machine Tool Builders' association held in Buffalo two weeks ago. The discussion clearly indicated that while the builders primarily are interested in building up their industry, their efforts are being directed along lines that ultimately will benefit the user in many ways.

Inasmuch as this column is written primarily for the users and prospective buyers of machine tools, it seems appropriate to touch on a few phases of the work being done by the builders' association.

Of most direct interest is the campaign for standardization of machine tool elements which, although still in indefinite form, slowly is taking shape and within a short time will produce tangible results. The standardization of screw threads is progressing satisfactorily and pressure is being brought to bear on the inauguration of a program for standardizing work-holding and tool-holding elements. Campaigns of this kind are attended with numerous difficulties and considerable time usually is required to iron out differences in ideas and to obtain approval on proposed standards. That the machine tool builders are actively behind these movements should be appreciated by the users, who unquestionably would be saved hundreds of thousands of dollars annually if the most troublesome parts of machine tools were standardized. Tool builders were urged at the convention to undertake the simplification of sizes. There is no doubt but what hundreds of unnecessary dimensions could be eliminated if a conscientious study of the problem were made along the lines followed by other industries in conjunction with the department of simplified practice of the United States department of commerce, Washington.

The association also is working out a standard for catalog sizes. Every user of machine tools knows that it is exceedingly difficult to file catalogs because of the wide range of shapes and sizes. In attempting to introduce uniformity in this respect, the machine tool builders are setting an example that other industries could profitably follow. This again is a step which, while beneficial to the manufacturers of tools, also will be of great service to the users.

In his report as general manager of the association, E. F. DuBrul made the statement that purchases of machine tools during the past year seem to have been largely of high-production machines that made old processes obsolete by great reductions in the cost of doing work. He stated that such machines got business where there was none to be had on standard machines of older types. From this he drew the conclusion that in order to stay in business the machine tool builder must count it a necessary part of his regular operations to be designing newer and better machines. It is his job to transfer more

Standard Data Helps Machine User

USERS of machine tools will be benefited by the use of standard data sheets which have been adopted by a number of machine tool builders and which have been approved by a committee of the National Machine Tool Builders' association. A description of the standard form and an explanation of how it can be used in engineering, production and maintenance work are given in the article by A. L. Evans beginning on page 1499 of this issue.

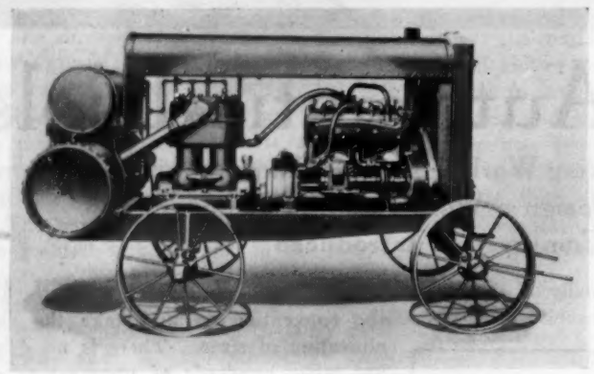
Anyone who has had the experience of searching through catalog files, blueprints of different sizes and builders' instruction sheets in an effort to obtain information regarding a certain machine will readily appreciate the advantages to be gained by using the standard form. As explained by Mr. Evans, the standard sheet provides that the information is arranged uniformly for all kinds of machines. This enables the purchaser of a new tool to find at a glance the information he is entitled to receive from the builder.

The standardization of data sheets is one of the many activities undertaken by the National Machine Tool Builders' association and while the adoption of this form is of far-reaching advantage to the builder, its value to the user is even greater. For this reason operators of machine tools are urged to read the article by Mr. Evans.

Air Compressor Is Made Portable

No. 92

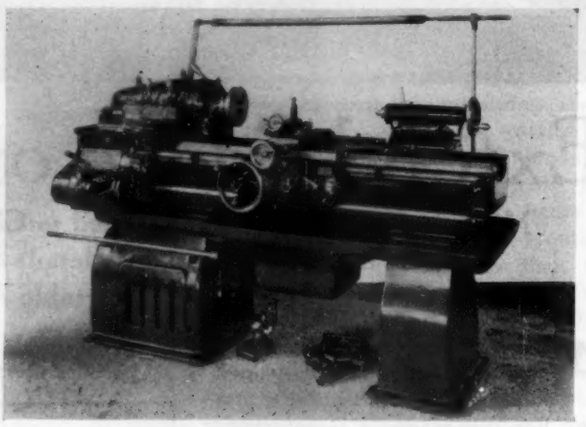
The Ingersoll-Rand Co., New York, has brought out a small portable air compressor unit of modern design and construction for operating labor aiding devices for use on outdoor jobs. It has 4¼ x 4-inch cylinders with a piston displacement of 60 cubic feet per minute. The compressor is of the duplex, vertical type and is direct-connected to a 4-cylinder, 4-cycle, tractor-type gasoline engine; enclosed construction; circulating water cooling system for engine and compressor with sectionalized radiator, fan and pumps; compressor regulator and engine control for reducing speed during unloaded periods; one-piece cast steel frame; sheet steel roof and removable side doors. The unit can be furnished with a variety of mountings; steel wheels and axles; wooden artillery wheels with solid rubber tires and steel axles; on a light motor truck; and on skids for mounting in a car or truck.



Lathe Newly Designed Throughout

No. 94

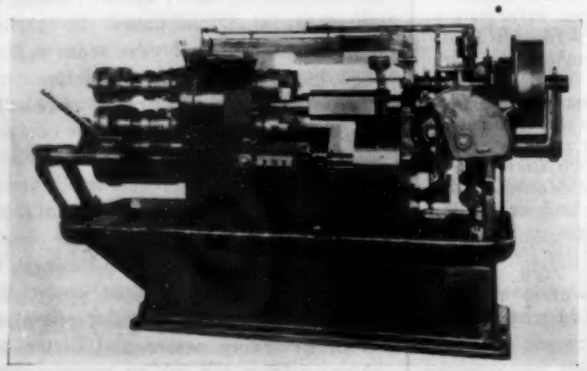
The Pratt & Whitney Co., Hartford, Conn., has announced a 13-inch lathe which is newly designed throughout. Quietness, strength, durability and accuracy are claimed as dominant characteristics. It has a swing of 13½ inches over the bed and is available in 6 and 7½-foot bed lengths. The maximum distances between centers are 32 and 50 inches respectively for the geared head and 30 and 48 inches for the cone head. This lathe is designed primarily for motor drive, the motor being placed in a cabinet leg beneath the headstock where it is below the center of gravity and reduces vibration. The motor is of 3-horsepower and is equipped with push button control, low voltage protection and full electrical equipment. Eight spindle speeds are provided.



Builds New Machine for Chucking

No. 93

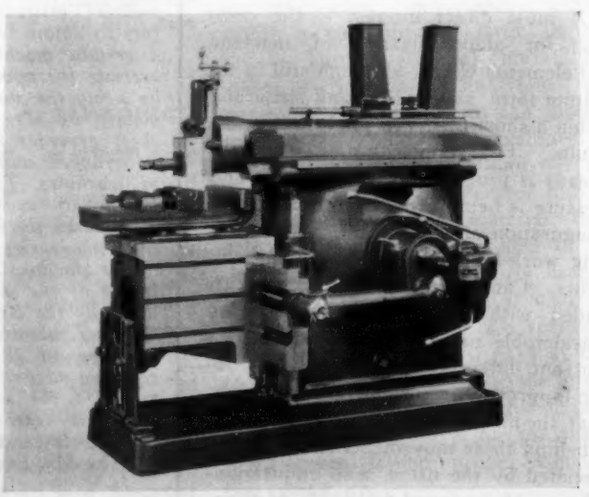
The National Acme Co., Cleveland, has brought out a 4-spindle automatic chucking machine of the Gridley type. It is adapted to a wide line of work where maximum accuracy and maximum production are desirable qualifications. The machine is furnished with automatic chucks of the air-operated or mechanically-operated types. The pneumatic chucks are of the sliding 3-jaw type, the jaws being actuated by gear teeth on the short arms of pivoted levers whose long arms are connected in the same manner to the end of a draw bar passing through the spindle. A feature of the machine is that one at a time its spindles are stopped automatically for loading, while the other three continue to run. When a spindle comes into the lower rear position, usually termed the fourth, this mechanism comes into play to bring the spindle to a standstill, so that the finished work may be removed from the chuck and a blank piece substituted.



Toolroom Shaper Has Eight Speeds

No. 95

The Cincinnati Shaper Co., Cincinnati, has developed a toolroom shaper built along lines similar to a standard model of that company. Mechanical features include an 8-speed internal transmission; completely automatic and visible oiling; a smooth, cam-actuated feed; direct-reading indicators for feed, speed and length of stroke; convenient controls to all movements; and improved guards to ram ways and cross rail. Either single-pulley or motor drive can be furnished. When the latter is used, the motor is mounted at the rear of the machine, being bolted to the base and column. A feature of the shaper is the universal swiveling table.



and more skill and intelligence from his men into the machines they build. This, he declared, means making machine tools more and more automatic.

Perhaps it is a coincidence that in the very month in which this statement was made, a greater number of new and redesigned machine tools was announced than in any 30-day period for some time. A glance through the accompanying pages will indicate that for the first time this year, new developments in units strictly classed as machine tools take precedence over those in shop equipment.

Again the desire to make machines more nearly automatic in operation and in the case of those handling heavy work to reduce the work of handling material to a minimum is reflected in a number of the machines announced in this issue.

A good example of this tendency is found in the automatic lathe brought out by the Lodge & Shipley Machine Tool Co. which is described as No. 99. This is a full automatic lathe having two complete carriages with tool slides, each equipped with an independent power quick forward and return traverse, as well as a power feed to both the carriage and the tool slide. As a result, both carriages can be used simultaneously in turning operations or both tool slides in facing operations, or as is usually the case, one carriage with its tool slide can be utilized in a turning operation while the other carriage with its tool slide is performing a facing and filleting operation. The machine is particularly adapted to quantity production of lathe work held between centers or on an arbor or in suitable holding fixtures.

Another example of developments in automatic lathes is the new 4½-inch multiple-spindle chucking machine of the Gridley-type recently developed by the National Acme Co. and described in these columns as No. 93. This machine extends the capabilities of the multiple-spindle machine into the field of chucking work. The machine is furnished with automatic chucks actuated either pneumatically or mechanically. The chucks most frequently used are of the sliding 3-jaw type and the jaws are actuated by gear teeth on the short arms of pivoted levers whose long arms are connected in the same manner to the end of a draw bar passing through the spindle. Mounted on the rear of each spindle is an air cylinder, the piston of which operates the draw bar back and forth. Behind the air cylinder is a 4-armed spider casting fastened to and revolving with the spindle carrier. At the center of this spider is a swivel connection to which the hose from the shop air supply is coupled. From the point of this connection radial ducts pass through the four arms of the spider to the valve chambers. The valves themselves are revolving disks which in gripping position turn compressed air into the front of the cylinder to close the chucks and in releasing position turn it to the rear of the spindle to move the piston in the opposite direction and open the chucks, at the same time releasing the pressure from the opposite end of the piston.

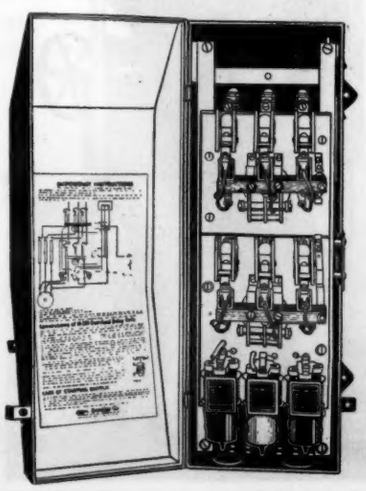
One of the outstanding features of the machine is that one at a time its spindles are automatically stopped for loading while the other three continue to run. When a spindle comes into the lower rear position, this mechanism comes into play to bring the spindle to a standstill so that the finished work may be removed from the chuck and a blank piece substituted.

The car wheel boring machine designed by the Betts Machine Works of the Consolidated Machine Tool Corp. of America and described as No. 102 is equipped with double pneumatic hoists, one on each side of the machine. The hoists are entirely independent and each will swing to the center of the

Designs Induction Motor Starters

No. 96

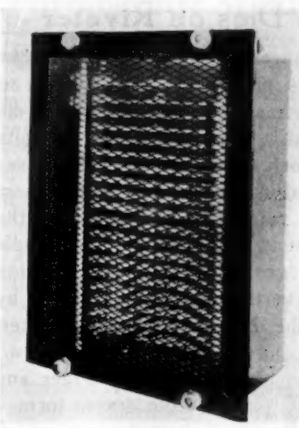
The Allen-Bradley Co., Milwaukee, has placed on the market a new line of resistance starters and across-the-line switches for induction motors. The accompanying illustration shows the automatic resistance starter. It is of the push button control type for squirrel cage motors and is said to provide smooth acceleration and low current inrush when switched from starting to running tap. The graphite compression resistors are adjustable with one adjusting screw for any starting current. The motor is started by pressing the starting button which closes the starting clapper switch and allows the motor to accelerate with the primary resistors in the main circuit. After a fixed interval in time, the timing relay closes the main clapper switch and throws the motor on the line without opening the primary and thereby short circuits the starting resistors. The switch has full protective features. The semiautomatic resistance starter is similar to the automatic starter except it has a handle control.



Controls Arc

No. 97

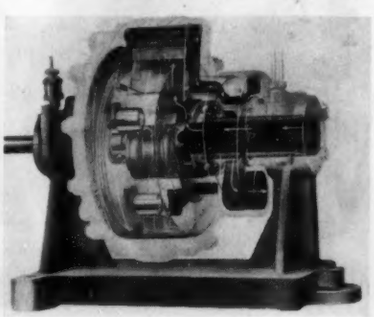
The General Electric Co., Schenectady, N. Y., has designed a standard cast iron resistance grid for connecting in series with the arc in electric welding. Variable resistance is obtained by connecting the arc terminal to any grid. Additional control is by the switch on the welding panel.



Pistons Rotate in Vacuum Pump

No. 98

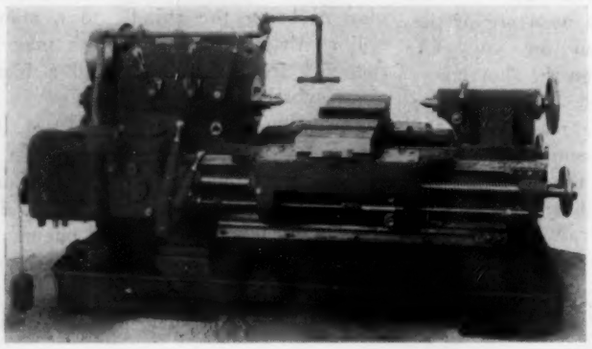
The Chicago Pneumatic Tool Co., New York, has developed a rotating piston type vacuum pump consisting of a rotor, or piston, and case which revolve one within the other about a fixed shaft and at the same angular velocity. Short overall dimensions permit its installation in limited spaces where it may be driven by shaft or motor.



Lathe Handles Multiple Tooling

No. 99

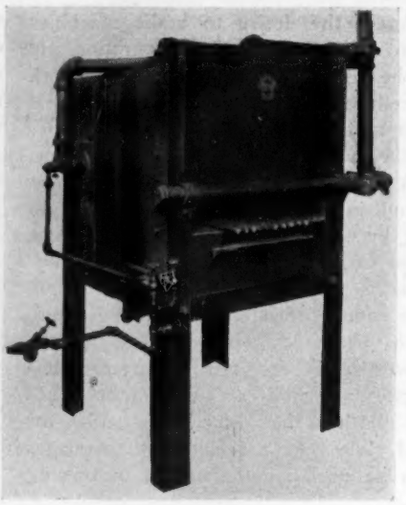
The Lodge & Shipley Machine Tool Co., Cincinnati, has introduced a full automatic lathe well suited for multiple tooling in turning and facing operations. It is said to be particularly adapted to quantity production of work held between centers, on an arbor, or in suitable holding fixtures. The machine has two complete carriages with tool slides, each equipped with an independent power quick forward and return traverse, as well as a power feed to both the carriage and the tool slide. Both carriages can be used simultaneously in turning operations, or both tool slides in facing operations, or one carriage with its tool slide can be utilized in a turning operation while the other carriage with its tool slide is performing a facing and filleting operation. A single-pulley drive with a multiple-plate clutch transmits through alloy steel gearing the power to the large diameter main spindle of the headstock.



Forging Furnace Deflects Gases

No. 101

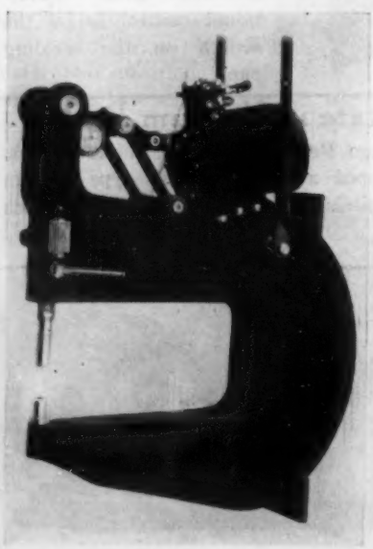
The W. S. Rockwell Co., New York, has developed a forging furnace embodying a number of distinctive features. In addition to providing economical heating conditions for the metal, it is said to provide improved conditions for the operator. Low pressure air in one system of piping is used to maintain heat, protect the operator and blow scale from the dies. A downward air blast deflects the hot gases from the operator and against a preheater, inducing a current of air past the operator and toward the furnaces. The heat in front of the working opening is radiant heat only and is free from gases. It is claimed that the full effect of the downward blast, or air shield, is maintained at all times, whether the forge is empty, partially or fully loaded. After passing through the preheater, the hot gases are discharged above the head of the operator. Several sizes are made.



Device Adjusts Dies on Riveter

No. 100

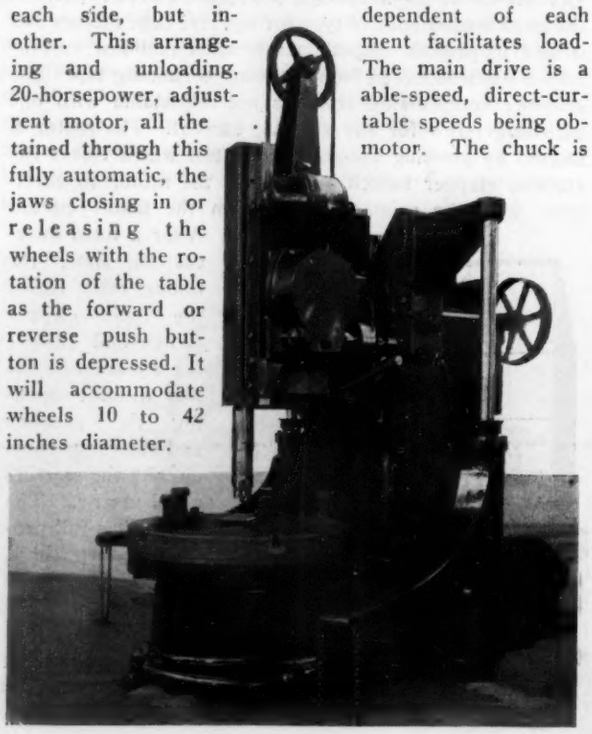
The Hanna Engineering Works, Chicago, has developed for its pneumatic type riveter an accessory which makes possible a rapid die screw adjustment. This mechanism permits the riveter to be used on work of varied plate thicknesses with little loss of time in adjusting the dies at each new grip. A few pulls of the ratchet handle advances the die screw the desired amount. Rotation of the handle rotates the large ratchet gear, transferring motion through an idler gear to a vertical gearshaft fastened by a pin to the upper end of the die screw which it rotates. The vertical gear, idler, plunger and die screw form a single unit which reciprocates with the regular adjusting mechanism. The ratchet gear is of such length that the idler can slide on it for the full stroke and remain enmeshed at all times. This mechanism is an addition to the standard machine, being recommended for work of varying thickness.



Car Wheel Borer Has Two Hoists

No. 102

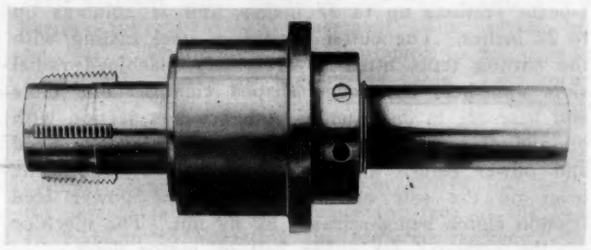
The Betts Machine Works of the Consolidated Machine Tool Corp., Rochester, N. Y., has placed on the market a car wheel borer designed for intensive production. The machine is equipped with double pneumatic type hoists, one on each side, but independent of each other. This arrangement facilitates loading and unloading. The main drive is a 20-horsepower, adjustable-speed, direct-current motor, all the speeds being obtained through this motor. The chuck is fully automatic, the jaws closing in or releasing the wheels with the rotation of the table as the forward or reverse push button is depressed. It will accommodate wheels 10 to 42 inches diameter.



New Rotary Tap Has Flange Trip

No. 103

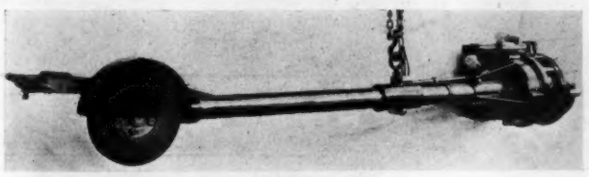
The Geometric Tool Co., New Haven, Conn., has designed a rotary tap with flange trip to be used on hand and automatic drilling machines, or multiple spindle automatics. Sizes range up to 1 inch.



Motor and Grinder Are Integral

No. 104

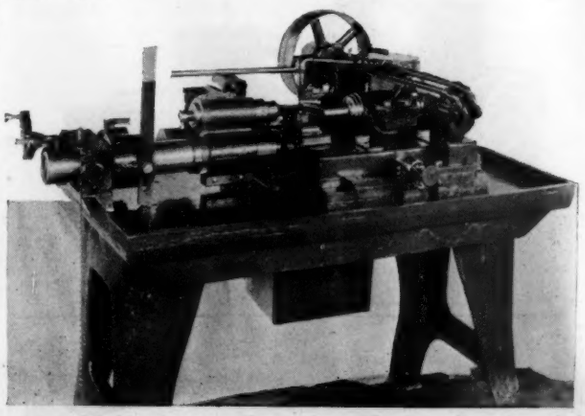
The Diamond Machine Co., Providence, R. I., has designed a direct-connected, motor-driven swing frame grinding machine with the motor built as an integral part. The motor is carried on a special end piece rigidly fastened to the hollow arm in which the driving shaft revolves. Two sizes of the machine are built.



Redesigns Thread Milling Machine

No. 105

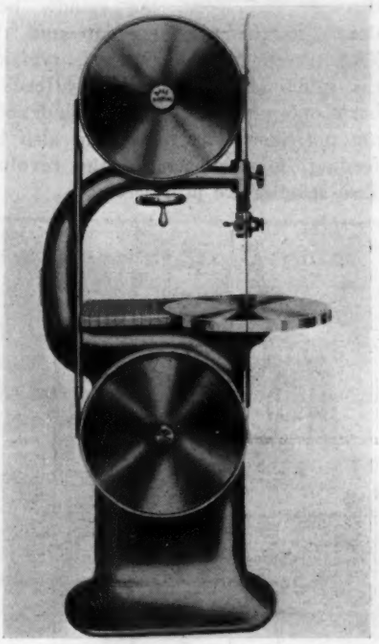
The O. S. Bickford & Son Co., Greenfield, Mass., has announced a redesign of its thread milling machine. This is a special machine of single-pulley drive used to mill a relieved thread on pipe taps, completing the operation in a single revolution of the tap. Many features of the old machine have been kept intact in the new, the main changes being for rigidity and reduction in vibration. A third bearing has been added to the main bar which carries the center heads supporting the work. The main or spindle head has been nearly doubled in weight and is heavily gibbed to the bed of the machine. Gear cases have been added so that all driving gears run in grease and an extra set of feed gears has been added so that seven changes of feed now are available. An old pump is integral with the machine, the oil tank being suspended underneath.



Band Saw Handles Wood or Metal

No. 106

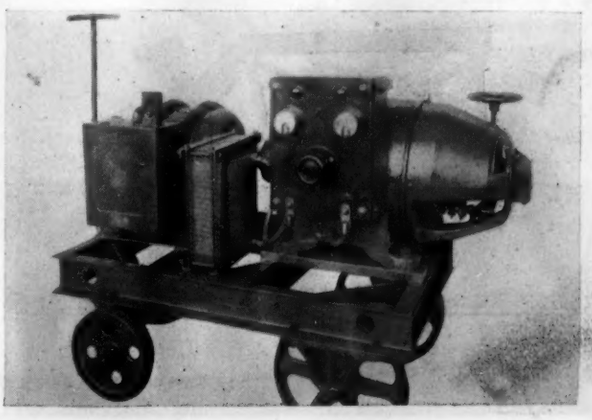
The Porter-Cable Co., Syracuse, N. Y., has developed a two-speed device for its 20-inch, motor-driven band saw, thus making the machine adaptable for wood or light metal cutting. For wood the regular speed of about 3000 feet per minute is used, but for metal, the speed is reduced to 1500 feet per minute. This speed reduction is accomplished by a knob on the gear case which shifts the driving gears. The motor is housed in the base where it is totally enclosed. The drive mechanism, which is ball bearing, runs in oil. The new device is not an attachment but an arrangement which is built into the machine when specified. With the two-speed arrangement, the band saw is suitable for aluminum and brass cutting, sawing hard rubber and fiber.



Portable Arc Welding Unit Rapid

No. 107

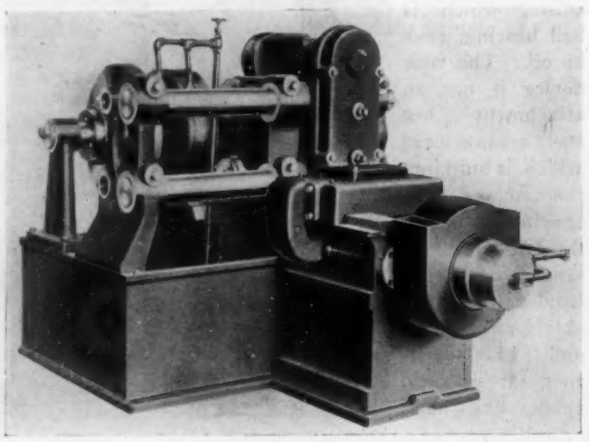
The General Electric Co., Schenectady, N. Y., has brought out a portable arc welder, the design of which is claimed to insure smooth and rapid deposition of metal with thorough penetration. It will deliver continuous power and permit rapid production both with high current and large electrodes or with low current and small electrodes. The welder is a two-unit set consisting of a motor and a generator. The generator is self-excited and all regulation of current is accomplished by turning a handwheel on the generator. A self-adjusting, stabilizing reactor automatically steadies the arc under the various welding conditions. Any of the commercial sizes of metallic electrodes from 1/16 to ¼-inch diameter can be used. Generator voltage can be adjusted to suit the character of the work.



Production Miller Is Versatile

No. 108

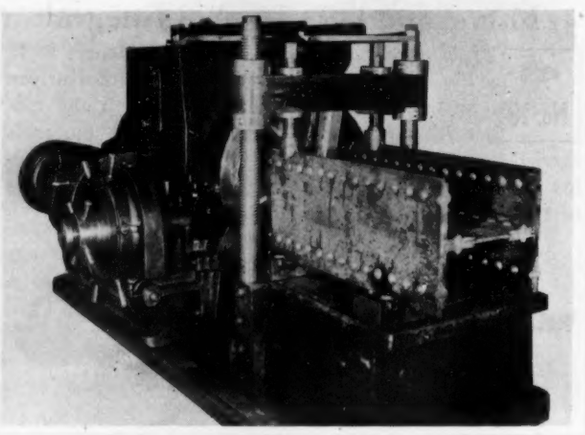
The Rockford Milling Machine Co., Rockford, Ill., has developed a continuous, double-spindle production milling machine which by its various combinations of movements is extremely versatile. It can be set for continuous milling with the turret revolving constantly and the spindle head stationary, or the turret fed through the work, the spindle head stationary, indexed to the next position and the cycle repeated. The turret can be indexed, remain stationary while the spindle head automatically feeds in, gash mill, and back out while the turret is indexed to the next milling position. The turret can also be indexed without feeding, four indexes to the revolution of the drum. Two spindles are provided.



New Machine Faces Column Ends

No. 110

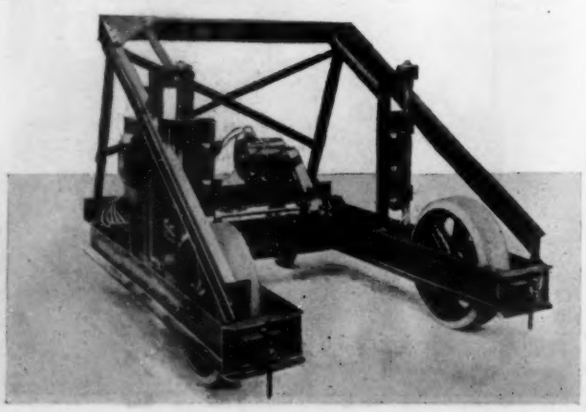
The Newton Machine Tool Works of the Consolidated Machine Tool Corp., Philadelphia, has designed a new type of machine for rapidly and accurately facing the ends of columns, girders and beams. It has a capacity for I-beam sections up to 27 inches, and H columns up to 22 inches. The cutter head is a steel casting with the cutting tools fitted in accurately machined radial slots and held by wedge shaped clamps. The table and base are in one casting of heavy box section with oil and chip pans cast integral on both sides. Feed and power return are both controlled by the same lever on the side of the machine, the power feed friction clutch being released by fly nut. The machine can be arranged for either belt or motor drive.



Trailer Handles Reels of Cable

No. 109

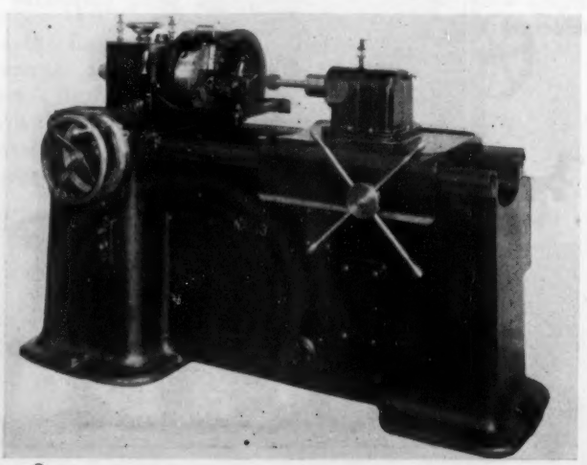
The Mercury Mfg. Co., Chicago, has developed a special trailer for mechanically lifting and transporting reels of cable. The motive power for the lifting mechanism is supplied by a heavy-duty motor, drawing its power from the storage batteries in the tractor hauling the trailer. Control is from the seat of the tractor. By means of the tractor the trailer is drawn alongside and to the front of the reel and backed to bring the reel within the trailer frame. A shaft is placed through the center of the reel which extends out and is picked up by the curved prongs or fingers which are attached to the lifting member. Lifting is accomplished by two vertical screws which are turned by worm wheels and worms on a shaft. This shaft is driven by the motor through a silent chain.



Hand Grinder Resembles Automatic

No. 111

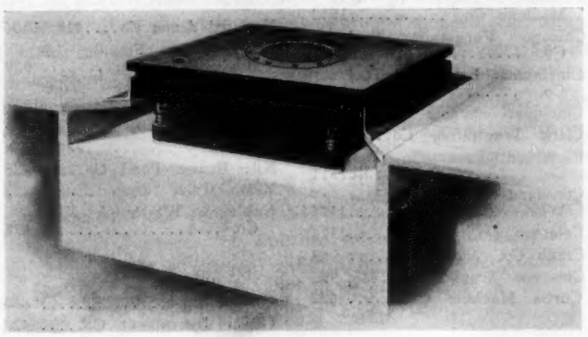
The Giddings & Lewis Machine Tool Co., Fon du Lac, Wis., has designed a hand-operated, internal grinding machine embodying many features of automatic machines made by that company. It was developed particularly for tool room and other work involving the finishing of only a few parts at a time. The machine is self-contained and is motor driven, one belt being utilized to convey power from the motor to the wheel spindle. It will grind straight and taper holes up to an included angle of 30 degrees and any size hole from ½ inch to a maximum diameter limited only by the 16-inch swing over the ways. The designs is standardized and all parts are made to be interchangeable.



Jarring Machine Totally Enclosed

No. 112

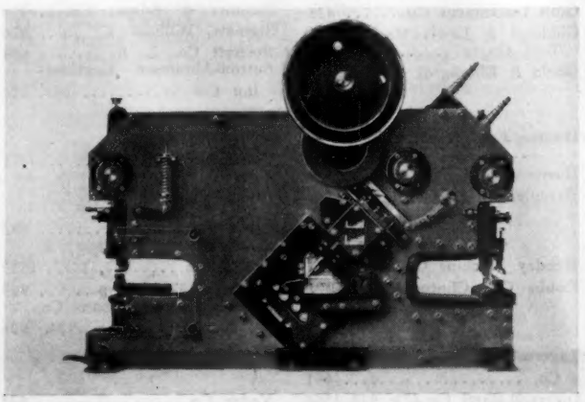
The Tabor Mfg. Co., Philadelphia, has designed a plain jarring machine of simple rugged construction and having all working parts concealed. The piston and cylinder are cast separately, the former being bolted to the table and the latter bolted to the base. This affords facility for repair or replacement. The jarring piston has a length suitably proportioned to its diameter to act as a guide for the jarring table. Two corner guides are provided, located diagonally opposite, wholly enclosed and protected from falling sand. A confined cork buffer is located in the bottom of the cylinder, against which the piston strikes just before the jarring table strikes against the face of the base. In addition to imparting the required resiliency, this buffer is said to effect a powerful spring that starts the table upward for the succeeding blow. The machine is controlled by means of a single valve mounted on the operating stand.



Punch and Shear For Heavy Duty

No. 113

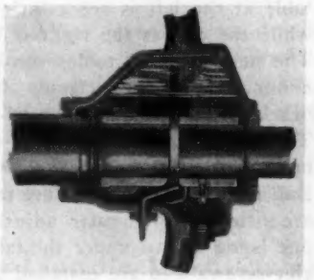
Henry Pels & Co., Inc., New York, has developed a combined punch, plate shear, bar shear, angle and tee shear and beam and channel shear designed to meet the requirements of railroad car or locomotive shops, structural or steel fabricating plants. The machine has a high and deep punch throat to accommodate wide flange beams or wide plates and webs of wide beams. The punching head is of the full floating type, being adapted for a triple gag punching attachment. It can also be fitted with a coping attachment that will cope both the flanges or webs of beams or other sections. The shearing end has a deep throat to handle wide plates and is equipped with an adjustable downholder that is quickly adjusted to varying thicknesses of material. Each blade for plate shearing has four cutting edges, being reversible with one another.



Motor Bearing Almost Air Tight

No. 114

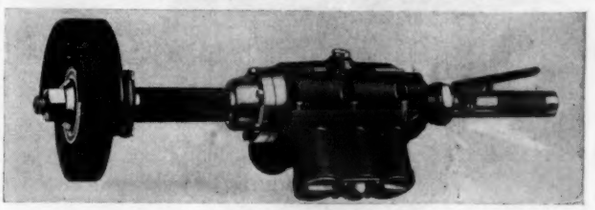
The Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has developed a sleeve bearing for electric motors which is designed to prevent leakage of oil into the windings or entrance of dust and grit into the bearing. It is said to be almost air tight. This condition is obtained through the construction of the bearing to secure a balanced air pressure in the separate chambers of the housing.



Introduces Portable Air Grinder

No. 115

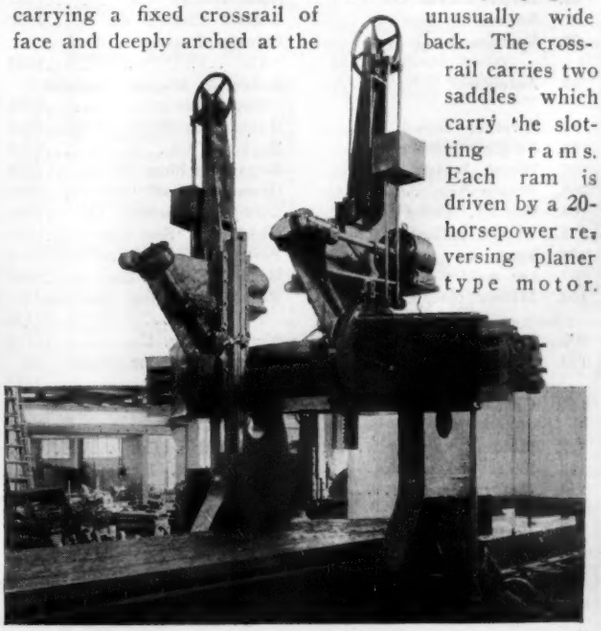
The Cleveland Pneumatic Tool Co., Cleveland, has designed a portable air grinder which drives a 6-inch emery wheel at 4600 revolutions per minute. It weighs 12 pounds. Several types of throttle handles can be supplied. An oil bath supplies lubrication.



Builds Slotter of Planer Type

No. 116

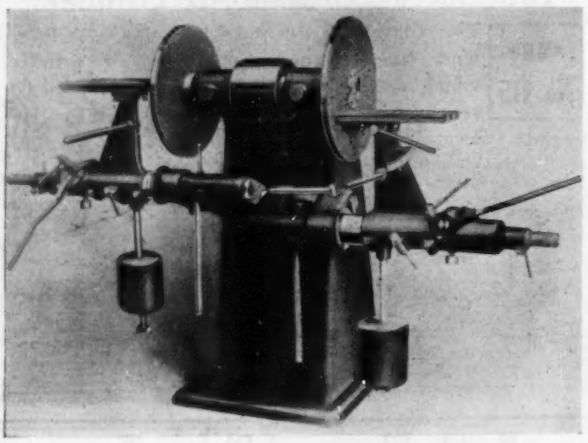
The Betts Machine Works of the Consolidated Machine Tool Corp., Rochester, N. Y., recently completed for the Commonwealth Steel Co., Granite City, Ill., a large special planer-type slotter. The bed and table of the machine are of conventional planer design. The bed has one vee and one flat track for guiding the table and the table tracks are lubricated automatically by means of oil pockets and rollers. Fastened to the bed are two heavy uprights carrying a fixed crossrail of unusually wide face and deeply arched at the back. The crossrail carries two saddles which carry the slotting rams. Each ram is driven by a 20-horsepower reversing planer type motor.



Mechanism Lowers Grinding Table

No. 117

The Carpenter Engineering & Machine Co., Minneapolis, has introduced a disk grinder, one of the features of which is a raising and lowering mechanism for the work table. The table at the left is set a little above the spindle center, while the one at the right is located below the spindle. The height of the tables can be adjusted readily to accommodate various classes of work by means of U-brackets which are mounted on substantial fulcrums. The spindle is 2⅛ inches in diameter, mounted in ball bearings. It operates at 1800 revolutions per minute. Ball thrust bearings also are provided. The work tables are fitted with angular adjustments with setting dials, one being shown under the table at the right. Micrometer screws also are installed to facilitate the making of fine adjustments. The machine weighs 1500 pounds.



Index of New Equipment Described In This Issue

No.	Equipment	Manufacturer	Page
92.	Air compressor	Ingersoll-Rand Co.	1506
93.	Chucking lathe	National Acme Co.	1506
94.	Lathe	Pratt & Whitney Co.	1506
95.	Shaper	Cincinnati Shaper Co.	1506
96.	Motor starter	Allen-Bradley Co.	1507
97.	Resistance grid	General Electric Co.	1507
98.	Vacuum pump	Chicago Pneumatic Tool Co.	1507
99.	Automatic lathe	Lodge & Shipley Machine Tool Co.	1508
100.	Riveting device	Hanna Engineering Works	1508
101.	Forging furnace	Rockwell Co., W. S.	1508
102.	Wheel boring mill	Betts Machine Works	1508
103.	Rotary tap	Geometric Tool Co.	1509
104.	Grinder, swing frame	Diamond Machine Co.	1509
105.	Thread milling machine	Bickford & Son Co., O.S.	1509
106	Band saw	Porter-Cable Machine Co.	1509
107	Arc welder	General Electric Co.	1509
108.	Milling machine	Rockford Milling Machine Co.	1510
109.	Trailer	Mercury Mfg. Co.	1510
110.	Column facer	Newton Machine Tool Works	1510
111.	Grinder, internal	Giddings & Lewis Machine Tool Co.	1510
112.	Molding machine	Tabor Mfg. Co.	1511
113.	Shear and punch	Pels & Co., Henry	1511
114.	Motor bearing	Westinghouse Electric & Mfg. Co.	1511
115.	Portable grinder	Cleveland Pneumatic Tool Co.	1511
116.	Slotter	Betts Machine Works	1511
117.	Grinder, disc.	Carpenter Engineering & Machine Co.	1512

Tools Described Thus Far in 1924 (by Manufacturers)

	Page
Aldis Bros.	426
Allen-Bradley Co.	1507
Ames Co., B. C.	680
Azor Motor Co.	1176
Barnes Drill Co.	924, 929, 1174
Bastian-Blessing Co.	682
Betts Machine Works	426, 678, 1176, 1508, 1511
Bickford & Son Co., O. S.	1509
Blanchard Machine Co.	678
Brown & Sharpe Mfg. Co.	1172
Budd-Ranney Engineering Co.	683
Buffalo Forge Co.	428, 1176
Carpenter Engineering & Machine Co.	1512
Chicago Pneumatic Tool Co.	928, 1507
Cincinnati Lathe & Tool Co.	682
Cincinnati Shaper Co.	1506
Clark Tructractor Co.	428
Cleveland Pneumatic Tool Co.	1511
Cleveland Punch & Shear Works Co.	1176
Coleman Co., F. A.	1172
Crane Co.	928
Crescent Truck Co.	425, 926
Curtis Machine Co.	682
DeWalt Mfg. Co.	426
DeVilbiss Mfg. Co.	925
Diamond Machine Co.	680, 1509
Electric Arc Cutting & Welding Co.	682
Elwell-Parker Electric Co.	425
Ever-Grip Wrench Co.	426
Excelsior Tool & Machine Co.	927
Fawcus Machine Co.	930
Federal Products Co.	428
Fellows Gear Shaper Co.	424
Flexible Steel Lacing Co.	428
Forbes & Myers	682
Gaterman Mfg. Co., W.	1178
General Electric Co.	684, 928, 1507, 1509
Geometric Tool Co.	1509
Gibb Instrument Co.	428
Giddings & Lewis Machine Tool Co.	1510
Gould & Eberhardt	427
Hanna Engineering Works	678, 1508
Harris Engineering Co.	1174
Hercules Mfg. Co.	1172
Hendey Machine Co.	681
Hobbs Co., Clinton E.	927
Ingersoll Milling Machine Co.	681
Ingersoll-Rand Co.	679, 929, 1506
Jones & Lamson Machine Co.	680
Lambert Tool Co.	1174
Landis Machine Co.	424
Landis Tool Co.	1174
Link-Belt Co.	930
Lodge & Shipley Machine Tool Co.	1508
Logemann Bros. Co.	928
Mercury Mfg. Co.	1510
Milburn Co., Alexander	929
Mitchell-Tappen Co.	1178
Mummert-Dixon Co.	1177
National Acme Co.	424, 1506
New Jersey Foundry & Machine Co.	929
Newton Machine Tool Works	1510
Niagara Machine & Tool Works	924, 1172
Niles-Bement-Pond Co.	426
Nilson-Miller Corp	1177
Noble & Westbrook Mfg. Co.	678
Oilgear Co.	680
Oliver Instrument Co.	427
Osborn Mfg. Co.	679
Pels & Co., Henry	429, 1511
Perkins Co., Henry	925
Porter Cable Machine Co.	1509
Pratt & Whitney Co.	926, 1506
Production Machine Co.	928
Rockford Milling Machine Co.	1510
Rockwell Co., W. S.	1508
Royer Foundry & Machine Co.	1173
Ryerson & Sons, Inc., Joseph T.	424
Schuchardt & Schutte	1176
Simplex Tool Co.	426
Sly Mfg. Co., W. W.	1173
Smith & Serrell	925
Societe Genevoise d'Instruments de Physique	1174
Sommer & Adams Co.	930
Stamets, William K.	926
Starrett Co., L. S.	684
Sutton-Abramsen Engineering Co.	683, 924
Tabor Mfg. Co.	1511
Walls Sales Corp.	682
Westinghouse Electric & Mfg. Co.	680, 1177, 1511
Williams Tool Corp.	929
Wilmarth & Morman Co.	924, 926
Yoder Co.	428

table. This arrangement facilitates loading and unloading the wheels since it permits handling them from either side of the machine. The application of the double hoists reduces the time consumed in loading and removing wheels. The chuck is fully automatic and is similar to that described in these columns several months ago.

Position of Motor Important

The new 13-inch lathe developed by the Pratt & Whitney Co. and described as No. 94 embodies a number of new features of design. The lathe swings 13½ inches over the bed and is built in lengths of 6 and 7½ feet. The machine is designed primarily for motor drive. The motor is placed in a cabinet leg beneath the headstock where it not only is out of the way it is so far below the center of gravity that vibration is greatly reduced. The result is a quiet operating machine with ample power to carry the heaviest cuts which this size of lathe is called upon to take. A 3-horsepower motor is recommended for this machine.

The back gears are situated beneath the spindle and are operated by an eccentric lever beneath the spindle nose which gives them a vertical motion for engaging and disengaging. This location does away with overhanging parts and results in a compact and symmetrical headstock.

A quick action withdrawing device for convenience in threading is incorporated in the lathe. This device consists of coarse and fine threaded screws arranged so that either one may be engaged as desired. When engaged, the quick withdrawing device allows the tool to be completely withdrawn from the coarsest thread by a quarter of a turn of the cross feed handwheel.

A universal swivelling table is one of the noteworthy details of the tool room shaper developed by the Cincinnati Shaper Co., which is described as No. 95. This table is arranged to swivel about a heavy trunnion which extends the length of the table and is cast solid with the apron. A worm and worm wheel operated by a crank wrench revolve the table to any angle or position desired, the angular position being indicated on the graduated plate on the front end of the trunnion. The new tool room shaper has practically the same mechanical features as the new manufacturing shaper described in an earlier issue.

A good example of the tendency to design machines capable of producing a high percentage of their running time is found in the double-spindle production miller developed by the Rockford Milling Machine Co. and described as No. 108. The flexible control of the two spindles and the revolving turret which carries the work enhances the value of the miller as a high production machine. Its capacity, therefore, depends largely on the operator's ability to load and unload.

The machine recently brought out by the Newton Machine Tool Works of the Consolidated Machine Tool Corp. of America is distinctly a special purpose machine. Described as No. 110, it affords a new and rapid method of facing the ends of fabricated columns.

To Handle Own Sales

The Ulster Iron Works, with principal offices at Dover, N. J., has established its own sales organization. Heretofore, sales of Ulster company products have been conducted through the agency of Joseph T. Ryerson & Son, Inc., Chicago. Howard A. Gray has been appointed general sales manager with headquarters at the Chicago branch office, People's Gas building. Henry T. Bradley has been appointed eastern sales manager, with offices in New York. Others appointed to the sales staff are E. W. Kavanagh, C. F. Barton and John H. Craigie. The company produces staybolt and engine bolt iron.

Tools Described Thus Far in 1924 (by Products)

No. Page

Boring and Reaming Machines

9. Car wheel 426
102. Car wheel 1508
34. Cylinder 681
23. 100-inch 678

Broaching Machines

71. Broaching fixture....1172

Drills

60. Air motor 928
66. Air motor 929
78. Automatic 1174
63. Gang 929
53. 3-way, horizontal..... 926
90. Tapping machine.....1178
45. Vertical 924

Grinders

35. Abrasive belt..... 682
62. Abrasive belt 928
83. Bench 1176
81. Cylindrical 1174
50. Die 925
117. Disc 1512
14. Drill 427
1. Gear 424
30. Face 680
77. Hob 1174
111. Internal 1510
115. Portable 1511
25. Surface 678
47. Surface 924
56. Swing frame 927
104. Swing frame 1509
36. Tool 682
89. Tool 1177
54. Tool, universal 926
73. Universal 1172

Hobbers

13. Gear 427
70. Spline, 8 spindle..... 930

Lathes and Automatics

99. Automatic lathe 1508
42. Bar machine 683
93. Chucking, 4-spindle....1506
38. Geared head 682
4. Screw machine..... 424
94. 13-inch 1508

Marking Machine

24. Dial marker 678

Material Handling Equipment

57. Chain hoist 927
65. Elevator 929
26. Hoist 679
55. Tractor 926
109. Trailer 1510
5. Truck 425
6. Truck 425
17. Truck 428

Milling Machines

110. Column facer 1510
52. Hand 926
108. Production 1510
16. Slab 426
33. Universal 681
105. Thread 1509

Pipe Machinery

3. Threader and cutter... 424
64. Threader and cutter.. 929

Planers

84. 120-inch 1176

Presses, Brakes, Etc.

59. Baler, scrap 928
74. Brake, sheet metal....1172
18. Hinge brake 428
21. Straightener 429
41. Straightener 683
48. Straightener 924
88. Straightener, wheel...1177
46. Trimming 924

Punches, Shears and Riveters

32. Hydraulic riveter.... 680
85. Punch and shear.....1176
113. Punch and shear 1511
86. Punch, multiple.....1176
100. Riveting device 1508
22. Suspension device..... 678

Saws

106. Band 1509
2. Friction saw..... 424

Shapers

95. Tool room 1506

Slotters

116. Planer type 1511

Small Tools

16. Gage, dial 428
28. Gage, dial 680
79. Level, precision.....1174
44. Parallels 684
80. Reamer, expanding...1174
103. Tap, rotary 1509
29. Taps 680
12. Vise 426
7. Wrench, pipe 426

Welding Equipment

107. Arc welder 1509
67. Cutting torch tip.... 929
20. Electrode holder 428
39. Electric welder 682
40. Welding torch 682

Miscellaneous

92. Air compressor 1506
51. Coupling, flexible 925
43. Flow meter 684
19. Forge 428
101. Forging furnace.....1508
72. Furnace, aluminum...1172
58. Gate valve 928
15. Lamp guard 428
31. Melting pot 680
82. Microscope attachment 1176
27. Molding machine..... 679
112. Molding machine 1511
11. Motor mounting..... 426
114. Motor bearing 1511
96. Motor starter 1507
61. Motors, induction.... 928
37. Oil separator 682
87. Reflector, lamp 1176
8. Periscope 426
97. Resistance grid 1507
68. Roller leveler 930
75 Sandblast unit.....1173
76. Sand mixer 1173
49. Spray gun 925
91. Stair tread 1178
98. Vacuum pump 1507
69. Vibrating screen 930

Engineers' Program Is Diversified

Seventeen Technical Sessions of Spring Meeting of A. S. M. E. Cover Many Subjects—Devote Attention to Industrial Preparedness—Education and Standardization—Nominate New Officers and Raise Dues

PROGRESS in its educational and standardization activities marked the spring meeting of the American Society of Mechanical Engineers held May 26 to 29 at Cleveland. Increased cooperation in public service, particularly in the industrial liaison plans of the war department, also received special attention.

At a business meeting held Monday it was reported that a constitutional amendent authorizing an increase in dues from $15 to $20 per year was adopted by the required vote of the members. The nominating committee, after several executive sessions and public meetings, announced the nomination of William F. Durand, professor of mechanical engineering, Leland Stanford university, for president of the society to succeed Fred R. Low, editor of *Power*. The nominees for other offices are listed elsewhere in this report.

Of the 17 technical sessions held, seven dealt with problems of direct interest to engineers in the metal-working industries. Attention was directed chiefly to the use of power in the steel industry, machine shop practice and interchangeable manufacture, industrial education, the effect of temperature on metals, aeronautics and ordnance, and management problems. The industrial preparedness session held Wednesday evening was one of the outstanding events of the meeting.

Inspection trips constituted an important part of the program. On Monday members and guests of the society visited the Nela Park research laboratories of the General Electric Co. and on Tuesday five plants in Akron were inspected. The Akron excursion included a joint dinner with the Akron section of the society. Cleveland industrial plants were visited Wednesday and on Thursday the ore docks, furnaces and mills of the National Tube Co. at Lorain were inspected.

Study Standardization of Machine Shop Practice

MACHINE tool construction and shop practice was discussed at a meeting held Tuesday morning with J. A. Smith, chairman of the machine shop practice division of the society presiding. "British Machine Tool Design" was the title of a paper presented by W. E. Sykes, consulting engineer, Farrel Foundry & Machine Co., Buffalo. The purpose of this paper was to present the status of machine tool design in Great Britain, consequently no comparisons were made between tools made there and in America. Representative tools were picked out and described. According to Mr. Sykes, present British designs show the following tendencies toward improvement: 1, ease of operation without reducing either strength or rigidity; 2, greater accuracy, both initial and permanent; 3, use of higher quality materials; 4, elimination of belts and countershaft; 5, more efficient and additional safety devices; and 6, automatic lubrication and the elimination of oil and grease cups.

In discussing this paper A. L. DeLeeuw, consulting engineer, New York, stated that the universal miller should be used only where a single purpose miller would not do, but that those places are rare. He said flooded lubrication is not always necessary and even though the oil used be filtered and re-used, it is not always desirable to re-use it because of its being weakened by cutting compound.

A. B. Cox, bureau of engineering, United States navy department, at the plant of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., presented an illustrated paper, "Limiting Cases in Involute Spur Gearing." The author derived a formula for determining the smallest number of teeth that an involute spur gear can have and be a perfect gear, that is, have teeth formed by straight, non-undercut flanks and unmodified involute faces, and be capable of rotating in either direction, during which rotation at least one tooth of the driving gear will always be in contact with a tooth of the driven gear to make driving continuous and uniform. In discussing this paper, Mr. DeLeeuw said the problem is to get rid of inaccuracies in gear making. Errors in cutting were reduced by development of the gear cutter, but new errors are introduced by hardening. Consequently gears are ground after hardening but new errors are introduced in indexing the grinding machine. Mr. DeLeeuw believed the solution to be in the hands of the machine tool manufacturer.

"The Sine Bar as a Universal Planing Gage," a paper presented by R. H. Rausch, shop superintendent, Niles-Bement-Pond Co., Plainfield, N. J., described a universal system of gaging for angular machined parts that is particularly applicable to planer work and involves the use of the sine bar and distance pieces.

L. D. Burlingame, chairman of the sectional committee on the standardization and unification of screw threads, made the first report of that committee. Following the drawing up of tentative standards for screw threads for bolts, machine screws, nuts and commercially tapped holes by the national screw thread commission, the American Society of Mechanical Engineers suggested some changes. These changes were approved and now are included in the final report. Mr. Burlingame said the point has been reached where industry can speak of the "American standard screw thread."

The purpose of the New Haven machine tool exhibit to be held at New Haven, Conn., Sept. 15-18, was explained by H. R. Wescott, chairman of the committee in charge.

A. J. Baker, chairman, papers committee of the machine shop practice division presided over the session on tooling and gaging for interchangeable

Officers Nominated

For President

WILLIAM F. DURAND
Leland Stanford University, Stanford University, California

For Vice Presidents

ROBERT W. ANGUS,
University of Toronto, Toronto, Can.

S. F. JETER,
Hartford Steam Boiler Inspection and Insurance Co., Hartford, Conn.

THOMAS L. WILKINSON,
Consulting engineer, Davenport, Iowa

For Managers

JOHN H. LAWRENCE,
Thomas Murray, Inc., New York

EDWARD A. MULLER,
King Machine Tool Co., Cincinnati

PAUL WRIGHT,
Paul Wright & Co., Birmingham, Ala.

For Treasurer

WILLIAM H. WILEY,
John Wiley & Sons, Inc., New York

manufacture Thursday morning. A. L. DeLeeuw, consulting engineer, New York, spoke on "Analysis of a Machine Shop Problem on a Quantity and Final Economy Basis". He presented a scheme of analysis to be followed in determining the most economical method of machining work either in large or small quantities. The speaker called attention to the saving of labor costs and the ultimate economy, saying that the ultimate economy is what counts and not the economy of a single operation.

In speaking on the "Manufacture of the Bolt of the Springfield Rifle" Major E. McFarland, commanding officer, Springfield armory, Springfield, Mass., described a number of machining operations which are particularly adapted to gun manufacture but which may find application in other lines of production. In the author's opinion the American engineer in the future will be required to design even better, to plan even more skillfully and to produce even more scientifically the material, fixtures and gages that will insure proper functioning of the article under manufacture.

Using Steam, Gas and Electricity in Steel Plants

AT THE Tuesday morning session held under the auspices of power, oil and gas power divisions at the chamber of commerce library, power problems of the steel industry were discussed. A safety code for mechanical power transmission apparatus with special application to the steel industry was presented by R. W. Sellow. That the value of fuels used and the complexity of problems incident to the operation of the power system of a representative steelworks are of greater magnitude than for a representative central station was advanced by Bryant Bannister, power engineer, National Tube Co., Pittsburgh, whose paper entitled "Power Organization in the Steel Industry" was prepared jointly by himself and F. M. Van Deventer, mechanical engineer, power department, National Tube Co., Pittsburgh. The authors pointed out facts which warrant the existence of a highly qualified organization for a steel company in the nature of a power department and presented reasons for centralizing responsibility to direct the engineering and operation of power systems. After outlining a method for accomplishing this without radical changes in existing organizations the authors showed that the results obtained amply justify any changes that may be involved.

Steam Waste is Enormous

Participants in the discussion of the paper by Messrs. Bannister and Van Deventer included R. J. Horne, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., J. J. Dunn, manager, Ellwood works, the National Tube Co., J. R. Levalley, Pittsburgh district manager, the Superheater Co., and L. W. Heller, Duquesne Light Co., Pittsburgh.

One of the most important factors in determining the type of boilers has been the quality of the feed water, according to J. S. Hunter, steam and sanitary engineer, the American Sheet & Tin Plate Co., Pittsburgh, who presented a paper on "The Generation and Utilization of Steam in the Iron and Steel Industry." In speaking on available fuel, Mr. Hunter estimated that by stopping bleeder losses at blast furnaces and increasing the efficiency of the stoves 2,345,000 gross tons of additional blast furnace gas will be made available. He outlined briefly the present-day tendencies in the design and size of equipment as well as various refinements in the control and showed the probable savings that could be made if all the steam required in the industry were made and consumed in the most efficient apparatus now in use.

Use More Powdered Coal

E. Progst, industrial engineering department, General Electric Co., Schenectady, N. Y. in discussing Mr. Hunter's paper stated that a larger use of powdered coal in the steel industry is certain. He described a few methods whereby economies in the steel industry can be realized. Professor Trinks, Carnegie Institute of Technology, Pittsburgh, advocated replacing old type steam engines with engines of the uniflow type. He stated that in the light of present-day fuel costs the change would pay for itself in one year. G. R. McDermott, Illinois Steel Co., Gary, Ind., pointed out that by using blast furnace gas in conjunction with a small proportion of coke oven gas and tar for reheating open-hearth furnaces, a large volume of coke oven gas is made available for sale to public utilities.

In speaking on "The Gas Engine in the Steel Industry" A. C. Danks, president, Ashmead-Danks Co., Cleveland, cited early installations of engines in this country using blast furnace gas as fuel and enumerated factors that enter into present day operation of gas engines that did not exist in the early installations. He called attention to the importance of the relation between the valve gear and gas analysis, and the effect of the entering temperatures of gas and air. The speaker directed attention to the fact that many of the gas cylinder failures today are directly traceable to the operator. As the price of coal increases the favor will be in the direction of the gas engine rather than in the direction of the steam generator according to the author's experience and judgment. In presenting a paper on "The War's Impress on the Steel Industry" at the Wednesday morning session of the aeronautics and ordnance division, A. E. White, director, department of engineering research, University of Michigan, Ann Arbor, Mich., quoted from letters received from inspectors and consumers of steel illustrating the different viewpoints relative to the effects of the late war on the steel industry. Outstanding contributions directly or indirectly attributable to the war as emphasized by the speaker included a distinct improvement of practice in operating plain carbon mills, a keener appreciation of the need for closer analysis of specifications, the need for the unification of specifications, the need for further research work and the splendid spirit of cooperation which today is existing between the government agencies and steel mill interests.

Preparedness Meeting

At a well attended meeting at the chamber of commerce on Wednesday evening, industrial preparedness was discussed by a number of well-known speakers. A number of engineering and military organizations participated in the meeting. Following a few opening remarks by President Low, the meeting was turned over to Frank A. Scott, president Warner & Swasey Co., Cleveland, and president of the Cleveland Engineering society. He introduced as the first speaker Major General C. C. Williams, chief of ordnance, Washingon. General Williams told of the preparedness work being done by his department.

A strong appeal for preparedness was made in an address written by Bernard M. Baruch, New York, former chairman of the war industries board, and read by Benedict Crowell, Cleveland, former assistant secretary of war. He urges "that legislation be put into effect that would give power to the president in case of war or threatened war, to mobilize immediately under supervision the resources of the nation. That would mean the

mobilization of men, money, materials, manufacturing facilities and maintenance, fixing of all prices, and the regulation and distribution of production."

War Reels are Shown

Mr. Baruch's appeal was backed up by an address by Assistant Secretary of War Dwight F. Davis. At the conclusion of the program several reels of motion pictures were shown by the war department. These included several on the manufacture of shells, a trip through Aberdeen proving grounds, the aerial bombing of the battleships NEW JERSEY and VIRGINIA, and three reels of the American troops in action in France.

A session on materials handling in industrial plants was held Tuesday morning under the auspices of materials handling and forest products division of the society. H. V. Coes presided as chairman.

M. L. Begeman, assistant professor of mechanical engineering, University of Michigan, Ann Arbor, Mich., presented a paper entitled, "Fundamental Economies of Materials Handling." In the paper the author discusses the advantages of handling materials mechanically without reference to particular types of equipment. The necessity for substituting mechanical handling of materials for labor, and the economies to be gained by such substitutions are dealt with. The latter part of the paper covers in a general way the points to considered in analyzing a proposed installation. He points out that installations of suitable materials handling equipment increase production, permit greater speed in moving the product through the plant, reduces labor expense and conserves floor space, lowers overhead expense and relieves the management of many details. He declares that these benefits do not merely affect the manufacturer but are a definite benefit to the employees and the public at large.

M. R. Denison, superintendent of stores division, Studebaker Corp., South Bend, Ind., described the time and labor saving methods devised for handling and inspecting raw materials and finished parts in a modern automobile manufacturing plant.

J. W. Roe, professor of industrial engineering, New York university, read a paper on "Measuring the Quality of Product," written by G. S. Radford, consulting engineer, New York, who was unable to attend. The author considers the possibility of reducing control of quality and the inspection function to a mathematical basis, and concludes that it is neither feasible or desirable.

"Control of Idleness in Industry" was discussed by W. L. Contrad, consulting engineer, New York, who explained that one of the chief causes of loss in industry is the idleness of plant and personnel due to lack of orders or to causes within the plant itself.

"A system for measuring and stimulating labor effort was described by Hasbrouck Haynes, president, Haynes Corp., engineers, Chicago. The system outlined by Mr. Haynes provides for wage payment and production incentive based on a unit of labor effort known as the 'manit' (man-minute) in which the worker receives a bonus for his production in excess of sixty manits per hour. The system also includes incentives for minimizing spoiled work and a bonus for supervisors.

Training for Industry

At the conference on education and training for the industries held Wednesday afternoon under the auspices of the committee, J. T. Faig, chairmain, in opening remarks outlined what has been done by the committee along the lines of preparing a plan for the education of nontechnical men in industry. Making industry attractive to the high school or college graduates was discussed by R. L. Sackett, dean of engineering, Pennsylvania State college, State College, Pa. That apprentice courses should involve from one to four years is a tradition was pointed out by the speaker. He urged the intensification of educational systems in order to reduce the term of apprenticeship. College men, he stated, are drifting away from apprenticeship courses because of the small amount of remuneration. In his concluding remarks the speaker stated that the school system is not providing young people with the proper preparation for the lines of work in which they go. Industry, he said, should use the system for training with which the student is familiar. To what extent industry is justified in capitalizing the potential value of the apprentice probably lies in the fact that it obtains a better assortment of workmen and at the same time reduces the labor turnover, the speaker stated. In the discussion which followed, Dr. I. N. Hollis, president, Worcester Polytechnic institute, Worcester, Mass., declared the worker should be trained along fundamental lines. Democracy is at stake, he said, and the educational move of today is vastly important to this country. S. S. Edmands, Pratt institute, New York contended that on account of our present immigration laws skilled and unskilled labor will be curtailed and that an approach to the study of the problem of industrial education must be found.

Cast Pipe Centrifugally in Sand Molds

At the convention of the American Water Works association recently held in New York, a number of manufacturers of cast iron pipe displayed samples of pipe made by a new application of the centrifugal process. The pipe, which is designed for water, gas and oil lines and for many other purposes, is the outcome of development work initiated by the American Cast Iron Pipe Co., Birmingham, Ala., in which a number of other manufacturers co-operated.

The pipe is made by the so-called sand-spun process, which employs a sand mold. The metal, at predetermined temperatures, is poured into a rapidly revolving sand-lined flask, against which the metal is cast without any chilling action. The centrifugal action of the mold, together with further manipulations thereof serve to evenly distribute the molten metal throughout the length of the mold, insuring a pipe of uniform thickness from end to end. It is claimed the speed of revolution of the mold is such as to cause the metal to be dense and to increase its tensile strength by more than 50 per cent. It is tough and hard to fracture, yet can be drilled or tapped for service pipe or the exterior or interior can be turned or threaded for any desired purpose.

Pipe of any desired thickness can be cast by the new method and not only the bell but the spigot or bead end can be formed as easily as it is formed by the old sand cast method.

A refractory lining which is applied to the sand mold before casting prevents burning of the sand to the iron and avoids scabbing. The sand in the flask is held in place by the centrifugal action. The refractory material which is applied to the sand mold is of such a character that during the casting operation it becomes incorporated by a fusing action with the outer shell of the casting, forming a coating which resists the formation of rust or corrosion, and acts as a protection to the pipe. If desired, the finished pipe may be coated with the regular tar varnish or coating, and can be coated on the interior with a cement or other lining material.

Cast iron pipe made by the new process have been thoroughly tested in the usual way in hydraulic presses, individual pipe being tested to 2400 pounds per square inch without showing defects. Bars made from the actual casting are said to have shown over 30,000 pounds in tensile stress, and proportionate results in transverse and breaking tests.

The new pipe is now being regularly made and marketed. Enlarged foundries are being built and old plants are being reconstructed for the new method.

Steel Exports and Imports Gain

Receipts in April Highest Since July 1923—Shipments Pick up But Little and Remain Behind Monthly Average for Last Year—Increased Buying of Foreign Rails, Pig Iron, Ferromanganese and Tubular Products Swells April Imports

TRADE between the United States and foreign countries in April in iron, steel and ores was featured by the sudden increase in imports, the quantity received that month being the largest since July, 1923. The total in April was 50,975 tons, as compared with 39,279 tons in March and 77,907 tons in April, 1923. Greatly accentuated buying of foreign rails, ferromanganese and tubular products accounted largely for the increase of April tonnage. Ferromanganese imports increased from 1841 tons in March to 6066 tons in April; rail receipts jumped from 394 to 4621 tons, and tubular products from 2004 to 6375 tons. Tin plate imports increased from 30 tons in March to 547 tons in April.

Exports, totaling 132,739 tons in April

(*Concluded on Page* 1520)

IMPORTS AND EXPORTS

Gross Tons

	1924 Imports	1924 Exports	1923 Imports	1923 Exports
Jan.	26,677	251,284	120,080	124,444
Feb.	42,054	168,191	67,707	135,182
March	39,279	124,762	106,206	165,624
April	50,975	132,739	77,909	179,159
May			75,891	204,988
June			68,019	172,747
July			53,448	170,259
Aug.			45,432	163,010
Sept.			36,612	173,664
Oct.			29,884	154,079
Nov.			26,534	186,770
Dec.			27,012	179,215
Totals	159,208	672,539	734,734	2,009,141

Year	Imports	Exports
1922	712,895	2,005,100
1921	135,829	2,150,276
1920	421,274	4,934,087
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,201	6,465,053
1916	328,965	6,110,732
1915	282,390	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635

ORIGIN OF FERROMANGANESE AND MANGANESE ORE IMPORTS

Gross Tons

Manganese ore from:	
Germany	16
Turkey-in-Europe	11,437
Cuba	2,037
Brazil	3,108
British India	7,618
British West Africa	5,513
Total	29,729
Ferromanganese from:	
France	16
Germany	5
England	6,045
Total	6,066

ORIGIN OF IRON ORE IMPORTS

Gross Tons

From:	April 1924	April 1923	Ten Months ending April 1924	Ten Months ending April 1923
Spain			104,736	72,182
Sweden	15,103	63,669	431,568	432,537
Canada	311	224	12,028	2,265
Cuba	30,404	38,800	486,746	516,588
French Africa	10,758	22,814	258,626	162,985
Other countries	93,239	45,952	757,031	428,222
Total	149,815	171,459	2,050,735	1,614,779

ORIGIN OF PIG IRON IMPORTS

Gross Tons

From:	
Belgium	100
Germany	704
France	4,204
Sweden	26
England	1,700
Scotland	1,286
Canada	4,851
British India	3,800
Netherlands	500
Total	17,171

IRON AND STEEL EXPORTS

Gross Tons

	April 1924	April 1923	Ten months ended April, 1924	Ten months ended April, 1923
Pig iron	4,117	1,844	34,222	27,127
Scrap	11,895	4,616	83,974	32,451
‡Semifinished	6,719	11,247	69,186	91,427
Iron, steel bars	††	††	††	*71,461
Steel bars	10,720	15,413	112,920	**55,208
Alloy steel bars	426	97	2,694	2,205
Iron bars	413	838	5,603	**6,879
Wire rods	1,556	3,617	34,489	17,719
Boiler plates	148	418	9,785	5,652
Other plates	10,499	13,609	73,406	81,071
Galvanized sheets	5,998	13,706	78,883	89,312
Steel sheets, black	5,482	10,502	152,942	79,176
Iron sheets, black	819	1,510	9,479	9,019
Strip	914	1,609	8,282	7,331
Hoops, bands and scroll	2,329	3,008	23,635	23,912
Tin, terne plate	5,924	13,478	138,314	63,231
Structural shapes, plain	7,359	10,141	84,753	88,348
Structural shapes, fabricated	843	5,271	25,701	21,957
Ship and tank plates, punched or shaped	266	89	2,497	1,997
Metal lath	141	91	1,580	*280
Other structural forms	3,062	3,211	41,179	50,106
Rails over 50 pounds	7,193	15,173	203,788	169,588
Rails under 50 pounds	596	2,385	21,614	21,085
Rail joints, etc.	812	1,353	20,914	16,226
Switches, frogs, etc.	366	285	5,332	5,120
Railroad spikes	404	750	6,807	6,451
Railroad bolts, nuts, etc.	77	188	2,012	1,938
Boiler tubes	1,311	1,046	13,340	11,157
Casing and oil line pipe	9,756	5,505	72,923	42,482
Welded black pipe	6,745	5,852	64,195	54,205
Welded galvanized pipe	2,573	1,896	26,430	25,561
Malleable iron pipe fittings		762	4,475	5,915
Malleable iron screw pipe fittings	1,619	††	*3,655	††
Cast iron pipe		861	8,068	14,427
Cast iron pipe fittings		950	6,902	8,900
Cast iron screw fittings	454	††	*2,614	††
Cast iron pressure pipe fittings	1,654	††	*5,344	††
Cast iron soil pipe fittings	345	††	*1,320	††
Plain wire and steel wire	1,197	1,953	27,887	27,089
Galvanized wire	1,395	6,390	33,308	42,596
Barbed wire	7,224	6,294	56,649	62,866
Woven wire fencing	284	478	2,992	2,680
Wire cloth and screening	245	78	1,877	1,345
Wire rope and cable	321	523	3,903	4,712
Insulated wire and cable	109	156	1,015	1,046
Other wire	1,123	1,059	10,892	12,177
Cut nails	281	621	1,481	2,580
Wire nails	878	3,463	40,241	25,517
Horseshoe nails	93	107	795	847
Other nails	443	482	4,428	3,541
Bolts, nuts, rivets, etc.	1,455	1,672	14,801	15,372
Horseshoes	58	40	812	882
Other iron and steel	5,986	7,506	53,028	55,403
Ferromanganese and spiegeleisen	1,028	1,505	3,115	2,891
Ferrosilicon	156	38	1,022	792
Total	132,739	183,686	1,721,503	1,471,260

CASTINGS AND FORGINGS EXPORTS

Gross Tons

	April 1924	April 1923	Ten months ended April 1924	Ten months ended April 1923
Iron castings	683	752	8,116	8,547
Steel castings	535	431	4,557	1,816
Car wheels and axles	1,544	1,170	17,197	13,607
Iron and steel forgings	152	495	1,994	2,069
Total	3,914	2,848	31,864	26,039

FERROALLOY EXPORTS

Gross Tons

	April 1924	April 1923	Ten months ended April 1924	Ten months ended April 1923
Ferrosilicon	156	38	1,022	792
Ferromanganese and spiegeleisen	1,028	1,505	3,113	2,891
Tungsten, manganese and other ores	70	121	1,388	258*
Ferrotungsten, tungsten metal and wire	..	..	2	..
Ferrovanadium	..	2	25	12
Other ferroalloys	26	50	98	194

*July 1 to Dec. 31.

DESTINATION OF EXPORTS APRIL, 1924

Gross Tons

	Rails	Galvanized sheets	Plates not fabricated	Tin terne plate	Steel sheets black	Barbed wire
Argentina	503	128	.....	168	104	178
Australia	...	3	7	...	...	231
Brazil	3	306	.....	328	21	3,455
British South Africa	...	24	.....	...	...	693
Canada	934	2,082	10,101	1,753	4,596	63
Chile	503	156	.....	28	...	48
China	845	254	.....	1,554	4	...
Colombia	695	165	.....	...	...	486
Cuba	1,697	533	7	154	8	726
Central America	...	391	.....	...	...	354
Dutch East Indies	...	5	.....	...	...	...
Honduras	50	...	.....	...	...	...
Italy	...	...	.....	668	...	...
Japan	848	226	.....	327	471	...
Mexico	661	460	24	270	69	282
Norway	...	72	.....	...	...	...
Peru	...	...	.....	11	...	...
Philippine Islands	61	481	148	48	18	250
United Kingdom	...	...	2	...	...	...
Venezuela	...	...	.....	3	...	96
Uruguay	...	...	.....	9	...	...
Other Europe	...	232	.....	...	...	...
Other South America	138	.....	...	79	...	
Other countries	1,415	344	52	587	113	364
South America	...	...	158	...	...	...
Hong Kong	...	...	.....	13	...	...

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

J. C. WIRKS recently was appointed district sales manager at Cleveland of the Thomas Sheet Steel Co., Niles, O., maker of high grade galvanized, blue annealed and black sheets. Mr. Wirks at one time was president and general manager of the Gary Iron & Steel Co., and later was district manager of sales at Cleveland for the Brier Hill Steel Co. Mr. Wirks more recently had been conducting a business at Cleveland under the name of J. C. Wirks & Co., dealing in sheets, plates, etc., and representing the Central Iron & Steel Co., Harrisburg, Pa.

* * *

William A. Kerr has been made a director of the Replogle Steel Co. to succeed F. H. Bell.

* * *

James C. Alley, Alley & Page, New York and Boston, will sail for Europe July 12 on the ROTTERDAM for a trip of two or three months.

* * *

Col. Washington A. Roebling, president of John A. Roebling Sons Co., Trenton, N. J., celebrated his eighty-seventh birthday on May 26.

* * *

George L. Bourne, president of the Superheater Co., New York, has been elected a director of the International Combustion Engineering Corp., succeeding T. F. Fitzpatrick, resigned.

* * *

Carl Stenburg, who for the past four years has been general foreman for the American Brake Shoe & Foundry Co., New York, has been made general superintendent of the Railway Materials Co., Toledo, O.

* * *

Paul G. Leoni, president of the Iron & Ore Corp. of America and vice president of Wm. H. Muller & Co., 11 Broadway, New York, will sail for Europe June 10 and expects to return about the end of August.

* * *

George K. Burgess, director of the bureau of standards, Washington, was conferred the honorary degree of doctor of engineering by Case School of Applied Science, Cleveland, at that institution's commencement May 29.

* * *

William L. Lindblom, who entered the employ of the Simmons Co., Kenosha, Wis., as a bench hand in the brass and tube mill as a boy, has been appointed general manager of the Kenosha plant, the largest of the Simmons metal bed and furniture group. He takes the place of James C. Ferris, who has been transferred to the executive offices in New York as general manager of all works.

* * *

James H. Cumiskey, formerly plant manager for the Central Metal Products Corp., College Point, L. I., manufacturer of hollow steel interior trim, has entered the field of general contracting, with office at Elmhurst, L. I.

* * *

Frederick H. Payne, president since 1920, of the Greenfield Tap & Die Corp., Greenfield, Mass., has resigned as partner of Tucker, Anthony & Co., and will give his entire attention to the Greenfield company.

* * *

J. W. Judge, representative on the Pacific coast for the Lake Erie Bolt & Nut Co., Cleveland, has joined with Alfred W. Dow, to form Judge & Dow, San Francisco, manufacturers' agent. They will represent Donner Steel Co., Apollo Steel Co., and other organizations.

* * *

Arthur H. Young, recently appointed industrial relations counsel for Curtis, Fosdick & Belknap, New York, had been manager of industrial relations for the International Harvester Co., since 1918. Prior to 1918 he had been superintendent of labor and safety at the South Works, Illinois Steel Co., Chicago.

* * *

Edward C. Clark has been added to the sales force of the New York office, 17 Battery place, of the Eastern Fuel Co., Peoples Bank building, Pittsburgh. He was graduated from Yale university in 1921. He became interested in the coal business, spending a year or so with the Savan Colliery Co., for which interest the Eastern Fuel Co. acts as sales agent.

* * *

Alexander D. Darragh has been appointed New York district sales manager for E. Arthur Tutein, Inc., with offices at 2 Rector street, New York. Mr. Darragh for 10 years sold pig iron and steel for the Carnegie Steel Co. and the Tennessee Coal, Iron & Railroad Co. at New York and Albany. For two years he served in the army and after his discharge went with the Consolidated Steel Corp., as assistant manager of sales. After that organization disbanded, he reorganized the sales force of the Consolidated Rolling Mills & Foundry Co., Mexico City, Mexico.

* * *

Arthur P. Taylor, treasurer of the Charles Taylor Sons Co., Cincinnati, refractories manufacturer, will leave for Europe on July 20 and will be accompanied by MacDonald C. Boos, senior fellow of the Refractories Fellowship, Mellon Institute of Industrial Research. They will visit central Europe, England, Belgium and France, and while in Europe will be the guests of the British Refractories Research association.

* * *

J. M. Gates has been appointed resident manager at Philadelphia for the Eastern Fuel Co., Peoples Bank building, Pittsburgh. He will have charge of sales in Philadelphia and nearby districts of New Jersey, Delaware, and eastern Pennsylvania. Mr. Gates is a graduate of the class of 1903 of the University of Pennsylvania, Philadelphia. For the last 18 years he has been identified with the coal trade in that city, having been with J. Tatnall Lea & Co., until the formation of the Prudential Coal Co. in 1920 when he became vice president of the latter company.

* * *

William Henry Williams, senior vice president of the Chateaugay Ore & Iron Co, with a blast furnace and ore mine at Standish, N. Y., has been elected chairman of the board of directors of the Missouri Pacific railroad. He had been chairman of the executive committee of the road. The Chateaugay company is a subsidiary of Delaware & Hudson Co. of which Mr. Williams is vice president. Mr. Williams also is chairman of the board of the Wabash railroad and interested in other companies.

Plans Furnace on Coast

Plans and specifications are being prepared by the engineering department of the Pacific Coast Steel Co., Rialto building, San Francisco, for the construction of a blast furnace plant at Long Beach, Cal., the complete project to cost about $7,000,000. Tentative plans for the first unit call for a plant of one blast furnace and by-product coke ovens. Contracts will be let for certain parts of the work.

Dullness in Machinery Demand

Holiday Adds to Quietness in Equipment Market Last Week—May Volume of Business Fell Far Below Totals of Previous Months—Used Tool Buying Slackening—Crane Market Again Showed Some Activity

DULLNESS marked the machine tool market last week, with the holiday contributing to the inactivity. May generally was a poor month for manufacturers and dealers. The total business in that month fell considerably below the volume of previous months.

Slackening in railroad buying became more evident last week, with few orders being received by manufacturers from that class of buyer. Orders were scattered and no large lists were closed. Considerable railroad business is before manufacturers but there is no indication of prompt closing.

Industrial buying also is quieter, and vocational schools now are among the leading purchasers, especially in the Pittsburgh and Chicago districts. The Great Western Mfg. Co., Leavenworth, Kans., which recently inquired for about 36 machines, purchased a number of tools at a recent auction.

Used equipment continues to fare better than new, in many districts, but a falling off in volume of sales is noted. Most of the business is being done in small tools, such as bench lathes, drills, etc. Crane activity picked up suddenly last week with the award of several good orders. Bethlehem Steel Corp. features the prospective buyers with an inquiry for 11 for a plant at Sparrows Point, Md. The Westinghouse Electric & Mfg. Co. and the American Sheet & Tin Plate Co. were among recent large buyers.

Vocational Schools Now Are Heavy Buyers

NEW YORK, June 3.—Trading in machine tools the past week was light, with the holiday last Friday a contributing factor. Railroad buying was confined to two or three orders for single machines, while industrial buying was scattered. Included in this latter were orders for six machines for the various plants of the Otis Elevator Co., this city, and a 5-foot boring and turning mill for the Latex Iron & Steel Co., of the Birmingham district. The General Electric Co., Schenectady, N. Y., is confining its activity at the moment to some small fill-in purchases for its various plants.

Crane demand is featured by an inquiry for 11 electric overhead cranes, ranging from five to 25 tons, for the plant at Sparrows Point, Md., of the Bethlehem Steel Corp. An inquiry for eight electric overhead cranes, it is understood, is to be brought out shortly by the Foundation Co., 120 Liberty street, this city, for installation at the Atlanta shops of the Southern railroad. As noted in a recent issue, the Foundation Co. is inquiring for several cranes for the Southern railroad shops at Knoxville, Tenn.

Davis Equipment Co., 50 Church street, New York, is in the market for the following list, preferably used equipment: One 30-ton crane ladle, one 25-ton crane ladle, one 84-inch iron cupola, one 4000-pound capacity scale on trucks for use on narrow-gage track, 20 1-ton balanced type cupola charging buggies for pig iron, ten 300-pound capacity balanced type cupola charging buggies for coke, one 75-pound air squeezed jolt molding machine, one 28 x 40-inch molding machine and one intensive sand mixer.

Trade Schools Buying Tools

PITTSBURGH, June 3.—Much of the machine tool market activity this week is in connection with trade schools. The Pittsburgh board of education distributed orders for a comparatively large number of machines for Peabody high school, for shipment about July 15. The Reliance Machinery Sales Co. received orders for the shaper, drill press; the McCoy-Brandt Machinery Co. was awarded two 9-inch and ten 12-inch Sydney lathes; Somers, Fitler & Todd Co. will furnish eight or nine items including two lathes, two grinders, a forge and planer, and a furnace. The list for the Carrick high school now is out and dealers still are working on the Braddock high school inquiry for five or six small items. The Carrick list calls for some heavy equipment including five or six large woodworking machines. The board of education at Parkersburg, W. Va., is understood to be planning the purchase of a number of machines, as is the school district board at Maddington, W. Va. One dealer sold two No. 4 thread rollers and others have disposed of a limited amount of small equipment. inquiries involve mostly individual tools. The crane market has been active again this week, and several inquiries pending for some time past have been closed. The feature order is that of the Westinghouse Electric & Mfg. Co. for its Sharon, Pa. transformer plant, the order being divided among the Cleveland Crane & Engineering Works, Alliance Machine Co., and the Morgan Engineering Co. The American Sheet & Tin Plate Co., and the Blaw-Knox Co. also figured among the week's crane buyers.

Buyers' Inactivity Continues

CLEVELAND, June 3.—Inactivity among machinery buyers in this district continues prevalent. Orders for more than one tool at a time are few. One Detroit automobile manufacturer last week closed on a dozen or more tools, some of which will be furnished by local manufacturers. Westinghouse Electric & Mfg. Co. also entered this territory for a few machines.

Used tools are quieter than in the past three or four weeks. Price concessions are more drastic as dealers struggle to get the small current business. Inquiries have picked up, but the increased pending business was not reflected in sales last week. Auctions of used equipment are eating into the business of dealers. Such sales as the Universal Tractor Co., Rock Island, Ill., have slowed used tool buying, although much of the equipment at that sale went to dealers.

The city of Milwaukee is in the market for one milling machine for the service department of Riverside pumping plant.

School Board Puts Out List

CHICAGO, June 3.—The Chicago board of education is taking bids on a number of tools for the wood shop of the Tilden technical high school, including 2 motor head speed lathes with a swing of 12 inches over the bed, turning 48 inches between centers and having a bed 72 inches long; 30 lathes the same as the foregoing except having

plain beds 48 inches long and turning 24 inches between centers; one mortising machine; two 6-inch portable hand planers and jointers and one 20-inch hand planer and jointer; and four oil stone tool grinders. The board's list of tools for the Crane technical high school is due, but not yet out. The Advance-Rumely Co., LaPorte, Ind., has placed a 30-inch gear tooth rounder with a Chicago house. The department of public works of Chicago has taken a 24-inch drill and a 16-inch x 6 foot lathe for its pumping stations. A manufacturer who is equipping a plant for the manufacture of wrenches is about to place $5000 worth of tools. The Great Western Mfg. Co., Leavenworth, Kans., purchased a number of tools at the auction of the Universal Tractor Co. plant equipment at Rock Island, Ill., last week. Most of the tools went to dealers, and at surprisingly high prices.

Market Is Quieter

CINCINNATI, June 3.—Supporting factors in the machine tool market have been withdrawn to some extent and have left the market here without activity. Railroads which have been large buyers this year have developed a spirit of procrastination and are not buying on their inquiries, preferring to let the situation rest for the time being. Sales are confined to an occasional tool or two and no inquiries are coming out for large groups. With some signs indicating better buying later in the year it seems probable the market will remain relatively quiet for some time. Automotive plants are not adding to their equipment and agricultural implement manufacturers are running slowly and are not in need of further tools. Prices are unchanged and are regarded as too high by most buyers. No tendency to lower them has become apparent. Sales of used machinery are more difficult to close, even though the bulk of those reported consist of odds and ends and small items such as bench lathes and drills. The Cincinnati Planer Co., reports an order from an eastern manufacturer for two planers, while the Cincinnati Milling Machine Co. received an order for three milling machines from a Chicago company.

May Shows Poor Total

BOSTON, June 3.—Inquiry which was encouraging a week ago has not yet materialized in orders and the month of May closed in New England with one of the poorest totals on machine tool dealer's books in several years. Inquiry still persists and most observers feel that June will be much ahead of May. Prices are holding remarkably firm in the face of meager sales. Current inquiry comes from railroads, from a textile machine manufacturer, several automobile part manufacturers, and an electrical manufacturer. Miscellaneous tools and equipment will be offered at public auction sale at the army base, South Boston, June 6.

Crane Awards and Inquiries

Orders Placed

Four 15-ton cranes for the Westinghouse Electric & Mfg. Co., to the Alliance Machine Co.

Three 15-ton trolleys, ordered by the American Sheet & Tin Plate Co. for New Castle, Pa., and other plants, from the Alliance Machine Co.

Two electric overhead cranes for the American Smelters Securities Co., 120 Broadway, New York, to Pawling & Harnischfeger Co.; one crane is of 25-ton capacity, 30-foot span, for shipment to Peru and the other of 10-ton capacity, 100-foot span, for shipment to Tacoma, Wash.

Single Installations

75-ton and one 50-ton crane for the Westinghouse Electric & Mfg. Co., Sharon, Pa., to the Morgan Engineering Co.

70-ton double trolley crane and a 15-ton single trolley crane for the Northern Pacific railroad, to Manning, Maxwell & Moore.

50-ton crane with 10-ton auxiliary for the American Sheet & Tin Plate Co., Wellsville, O., to the Alliance Machine Co.

30-ton locomotive crane for McClelland & Junkersfield, St. Louis, to the American Hoist & Derrick Co.

30-ton with 10-ton auxiliary and 80-foot span for the Westinghouse Electric & Mfg. Co., Sharon, Pa., to the Cleveland Crane & Engineering Works.

15-ton crane, 60-foot span, for Austin Ford & Son, Cambridge, Mass., to the Lane Mfg. Co.

10-ton double trolley crane, 85-foot span, for the Bourne-Fuller Co., Cleveland, to an eastern builder.

10-ton, 45-foot span, for the Fort Wayne plant of the General Electric Co., reported placed.

5-ton, 2-motor trolley for the Blaw-Knox Co., Pittsburgh, to the Cleveland Crane & Engineering Works.

2-ton, single I-beam crane, 22-foot span, for the Dilts Machine Works, Fulton, N. Y., reported last week as awarded to another builder, to Shepard Electric Crane & Hoist Co.

Ditcher for the Michigan Central, to the American Hoist & Derrick Co.

Telpher crane for the A. M. Byers Co., Girard, O., to the Alliance Machine Co.

Orders Pending

Nineteen cranes for the Gary plant of the National Tube Co.; action still deferred.

Eleven electric overhead cranes, 5 to 25 tons capacity, for the Sparrows Point plant of the Bethlehem Steel Corp.; actively pending.

Eight electric overhead cranes for the Atlanta shops of Southern railroad; inquiry, it is understood, to be brought out shortly by the Foundation Co., 120 Liberty street, New York, the list for the Southern railroad shops at Knoxville, Tenn.

5-ton wall crane for the Pittsfield, Mass., plant of the General Electric Co.; bids asked.

5-ton crane for the Pittsburgh Steel Co., Pittsburgh; bids being tabulated.

Number of cranes for brass foundry addition for the Westinghouse Airbrake Co., Wilmerding, Pa., including cranes of 3-ton and 5-ton capacities, together with hoist and monorail system; bids being tabulated.

Traveling cranes for Ford Motor Co. plant at Hamilton, O.; pending.

Exports and Imports Gain

(*Continued from Page* 1517)

were but little higher than in March when they were 124,762 tons. This is considerably below the monthly average of shipments in 1923, which was 167,428 tons. Although a few products increased in tonnage shipped from March to April, the materials which had contributed largely to the total in the past few months fell off. Steel rail shipments totaled 7789 tons as compared with 27,502 tons in February, and 33,111 tons in January, when exports were at a higher level. Tin plate shipments dropped from 25,443 tons in January to 21,854 tons in February, 12,902 tons in March and 5920 tons in April. Iron and steel plates, boiler tubes and ferromanganese shipments were the only items on the export list which showed an increase.

Manganese ore imports dropped sharply, from 46,067 tons in March to 29,729 tons in April.

Canada continues to lead all countries as a buyer of American finished steel products. Of the 10,499-ton total of unfabricated plates exported, Canada received 10,101 tons.

IMPORTS OF VARIOUS ORES AND FERROALLOYS

Gross Tons

	April 1924	April 1923	Ten Months ending April 1924	Ten Months ending April 1923
Ferromanganese	6,066	6,053	54,563	48,945*
Ferrosilicon	1,307	1,169	10,848	14,231
Manganese ore	29,729	14,071	228,967	3,060,327**
Tungsten ore	.....	.....	.....	21,850**
Nickel ore	528	648	4,990	4,038
Total	37,630	21,941	299,368	3,149,391

*Beginning July 1, 1922.
**Beginning Sept. 22, 1922.

IRON AND STEEL IMPORTS

Gross Tons

	April 1924	April 1923	Ten months ended April, 1924	Ten months ended April, 1923
Pig iron	17,171	32,271	133,797	*580,389
Ferromanganese	6,066	6,053	54,563	*48,945
Ferrosilicon	1,307	1,169	10,848	14,231
Scrap	6,900	26,854	71,456	*2,946,014
Bar iron	479	1,238	4,808	8,803
Steel ingots, bars, etc	3,527	1,263	27,691	24,083
Structural shapes	2,002	1,291	13,666	9,241
Rails	4,621	2,917	25,609	17,604
Boiler and other plates	5	5	2,895	**1,504
Sheets and saw plates	250	105	2,750	845
Tin plate	547	3,273	1,303	9,315
Wire rope and insulated wire	96	13	810	**376
Wire rods	883	29	4,963	2,451
Total	43,854	76,481	355,159	3,663,801

OTHER IMPORTS

Gross Tons

Tubular products	6,375	528	18,363	**2,366
Round iron and steel wire	196	315	2,744	2,101
Castings and forgings	204	302	2,304	**1,070
Nails and screws	13	118	432	**599
Bolts, nuts, rivets, etc.	4	17	144	**122
Flat wire and strip steel	329	149	1,727	**640
Total	50,975	77,910	380,873	3,670,699

*July 1 to Sept. 21, 1922.
**Beginning Sept. 22, 1924.

New Construction and Enterprise

IRONDALE, ALA.—William White, inventor of an electric light globe, plans plant between here and Gate City, for manufacture of patented product.

SAN FRANCISCO—The Quick Adjustable Wrench Co. has been incorporated for $500,000 by J. V. Bellumini, A. L. Lucot, W. M. Whittenberg, L. S. Fraser and T. G. Negrich.

BOULDER, COLO.—An electric power plant costing approximately $12,000,000 is being constructed here.

DENVER, COLO.—The municipality is spending about $12,000,000 for water system and public improvements.

HARTFORD, CONN.—The Colling Tool & Machine Co., Asylum street, plans constructing 1-story, 50x100-foot machine shop. Greenwood & Noerr, Main street, are engineers.

NEW HAVEN, CONN.—The Ace Products Corp. has been formed with $50,000 capital to manufacture and deal in automobile accessories, by George E. LaVietes.

WEST HAVEN, CONN.—Metal Products Co., Inc., has been incorporated for $100,000 by John E. Garritty.

WASHINGTON—Wood Hydraulic Hoist & Body Co., Inc., has been incorporated for $10,000 by Arthur A. McDermott, 3415 M street, northwest, and others.

WASHINGTON—United States Wrench Mfg. Co., Inc., has been incorporated for $700,000 to manufacture wrenches, etc., by J. M. Maupin, 819 Fifteenth street northwest, C. C. Sarah, and others.

ORLANDO, FLA.—Farm & Home Machinery Co. has been incorporated for $12,000 with E. W. Yandre as president and E. E. Rhodes as secretary.

ROME, GA.—Davis Foundry & Machine Works is in the market for light steel frame warehouse storage building.

CHICAGO—Economy Electric Lantern Co.,

Recent Industrial Business Changes

WILLIAM GANSCHOW Co., Chicago, manufacturer of specialty gears, soon will move its plant to Peoria, Ill., where it has acquired space in the Acme Factories Sites Corp., South Bartonville. The foundry as well as the gear shop will be moved. William Goepke, vice president, will be in charge of the Peoria branch.

* * *

Yachting Machine Shops, Inc., New Orleans, has been dissolved.

* * *

The plant of the National Abrasive Co., Amesbury, Mass., has been sold to the American Abrasive Co., Westfield, Mass.

* * *

The Warner Iron Co., announces the removal of its main offices from Nashville, to Cumberland Furnace, Tenn.

* * *

Keystone Tool & Metal Parts Corp., Buffalo, N. Y., has changed its name to the Nob Products Corp.

* * *

Anderson Engine Co., Chicago, designer and manufacturer of special machinery and engines, has removed its offices in that city to 4236 Lincoln avenue.

* * *

General Motors Corp., New York, is to sell two idle plants at Bloomfield, N. J., which were bought from the International Arms & Fuse Co. several years ago.

* * *

A branch office for the handling of the company's Florida business has been established at Tampa, Fla., by the Nashville Bridge Co., operating plants at Nashville, Tenn., and at Bessemer, Ala. J. W. Leroux, of Atlanta, is in charge of the new office.

* * *

After June 1, the Ohio State Foundrymen's association will have its headquarters at 5713 Euclid avenue, Cleveland, having moved from the Century building. Arthur J. Tuscany is secretary and manager.

* * *

The Austin Co., Cleveland, has removed its Chicago district offices from the Continental & Commercial National Bank building to the Burnham building, 160 North LaSalle street, Chicago.

* * *

Economy Fuse & Mfg. Co., Chicago, manufacturer of fuses, etc., on June 1 removed its Chicago district sales office from 536 Transportation building to larger quarters at 513 West Jackson boulevard.

* * *

Alfred W. Dow, San Francisco, iron and steel manufacturer's agent, has changed his business name to Judge & Dow. The company handles accounts for Donner Steel Co. and Apollo Steel Co. Headquarters are at 300 Call building, San Francisco.

* * *

Peck's Brass Foundry Co., Bellingham, Wash., has increased its capital stock from $5000 to $25,000 and has changed its name to Bellingham Chain & Forge Co. A new plant is being constructed for manufacturing chain up to one inch in size.

* * *

The Armstrong Cork & Insulation Co., Pittsburgh, announces changes in its branch office addresses at Denver, Colo., and Kansas City, Mo. The headquarters in Denver has been moved to 720 Symes building, and that at Kansas City to 410 West Sixth street.

* * *

The Daniel's Ornamental Iron & Wire Corp., recently incorporated, has taken over the plant of the Daniel's Ornamental Iron Works. W. H. Daniel is president and treasurer of the new company, which will continue the manufacture of folding gates and ornamental iron and wire.

* * *

Ridenour, Seaver & Kendig, Caxton building, Cleveland, manufacturer's representatives, have opened a branch office at 773 Ellicott Square building, Buffalo, N. Y., to handle the western New York territory. The company represents Industrial Works, Bay City, Mich., in the Cleveland and Pittsburgh territories. L. N. Ridenour will be in charge of the Buffalo office.

* * *

The Rosenbaum Mfg. Co. has moved its offices from 33 Bleecker street to 54 East Ninth street, New York, where it occupies considerably larger quarters. The company specializes in job sheet metal and ornamental iron work and also in the manufacture and erection of special machinery.

* * *

Heating & Power Appliance Co., 200-10 Pleasant street, Milwaukee, has been incorporated for $100,000 to take over the business of that name. The ownership is practically unchanged. Frank K. Hutchinson, Silas R. Jones and W. E. Lange were incorporators. The company makes steam traps.

549 West Washington boulevard, has been incorporated for $75,000 to manufacture and deal in lamps and lanterns, by Ross Davenport, Charles B. Bolles and Albert C. Grunwald.

CHICAGO—Western Metal Spinning Works, 1730 South Jefferson street, has been incorporated for $25,000 to manufacture and sell automobile parts and accessories, by Kelly, Burns & Daly, 69 West Washington street.

CHICAGO—Precision Die & Tool Co., 1850 West Fulton street, has been incorporated for $40,000 to manufacture and deal in tools, dies, jigs, etc., by Charles Kietel, Jr., Carl A. Swanson, John H. Seaberg and Oscar W. Anderson.

CHICAGO—Oil Heating Co., 215 North Michigan avenue, has been incorporated with 300 shares no par value stock, to manufacture and deal in heating apparatus, etc., by John S. Lord, George L. Wire and Charles L. Cobb.

CHICAGO—Molthop Supply & Mfg. Co., 322 South Michigan avenue, has been incorporated for $20,000 to manufacture and conduct brokerage business in steel, materials, etc., by H. E. Kerber, Hill Blackett and D. T. Molthop.

CHICAGO—Fluidair Corp., 4621 Park avenue, has been incorporated with $100,000 capital and 8000 shares no par value stock, to manufacture and deal in pumps, by Walter E. Boerger, Charles O. Bartlett and Edward C. Lindsey.

CHICAGO—York Wrench Mfg Co., 2415 Diversey avenue, has been incorporated with 200 shares no par value stock, to deal in and manufacture tools and appliances, by Frederick H. Raedel, Herschel V. Shepard and Merle E Morris.

CHICAGO—Economy Fuel Corp., 310 South Michigan avenue, has been incorporated for $10,000 to manufacture and deal in machines, turbines, etc., by T. A. Sheehan, R. P. Gibbons and N. M. Gibbons, J. W. Gibbons and H. J. Greuene.

CHICAGO—Ward T. Huston of Ward Huston & Co. has purchased from the Ford Motor Co. the assembling plant at Pershing road, Wabash avenue and Fortieth street. A central service station and warehouse of the People Gas Stores, Inc., will occupy the site.

CICERO, ILL.—The Cicero Chicago Corrugating Co., 1542 South Fifty-first street, has purchased a site 123x275 feet on Fifty-second avenue and Fifteenth street, where it plans expansion.

ELGIN, ILL.—Elgin Piston Pin Co., 60 River street, has been incorporated for $1000 to manufacture and deal in machinery and equipment for automobiles, by Martin S. Kok, Frances Kok and Carl P. Brucker.

GALESBURG, ILL.—The Chicago, Burlington & Quincy railroad, has awarded construction contracts for 80x216-foot repair plant for steel cars.

MARION, ILL.—Davis Bros. Motor Co., is planning 2-story, 85x130-foot garage, about $60,000 in cost. Fred K. Davis, is in charge. Spencer & Son, 1830 Calumet avenue, Chicago, are architects.

MENDOTA, ILL.—The Mendota Mfg. & Transfer Co. is building a 40x100-foot machine shop for manufacturing farm implements. J. Schalb is general manager.

ROCK ISLAND, ILL.—A. L. Bartlett Co., 506 Cedar street, has let general contract for $30,000, 1-story, 75x165-foot warehouse of brick and reinforced concrete.

INDIANAPOLIS—The Standard Sanitary Mfg. Co., Bessemer building, Pittsburgh, has rejected bids on 4-story, 80x149-foot warehouse here to be constructed at Pratt and Senate streets. Bids will be taken later in the year by engineer Hunting & Davis, Century building, Pittsburgh.

KANSAS CITY, KANS.—Kansas City Can & Mfg. Co., 1017 North Forth street, Kirk

Warehouse Steel Prices

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.49c to 3.515c
Buffalo	3.55c
Chicago	3.20c
Cincinnati	3.40c to 3.50c
Cleveland	3.36c
Detroit	3.35c
Los Angeles	3.75c
New York	3.44c to 3.49c
Philadelphia	3.00c to 3.25c
Pittsburgh	3.15c
San Francisco	3.75c
Seattle	3.50c
St. Louis	3.35c
St. Paul	3.45c

IRON BARS

Boston	3.49c to 3.515c
Buffalo	3.50c
Chicago	3.20c
Cincinnati	3.40c to 3.50c
Detroit	3.35c
New York	3.49c
Philadelphia	3.00c to 3.25c
St. Louis	3.35c

REINFORCING BARS

Boston	2.75c to 2.90c
Chicago	2.45c
Cincinnati	3.40c to 3.50c
Cleveland	2.71c to 3.36c
Los Angeles, C. L.	3.60c
Los Angeles, L. C. L.	4.00c
New York	3.00c
Philadelphia	2.90c to 3.00c
Pittsburgh	2.40c to 2.50c
San Francisco, C. L.	3.65c
San Francisco L. C. L.	4.00c
Seattle	3.50c

SHAPES, STRUCTURAL

Boston	3.59c to 3.615c
Buffalo	3.65c
Chicago	3.30c
Cincinnati	3.50c to 3.60c
Cleveland	3.46c
Detroit	3.45c
Los Angeles	3.85c
New York	3.54c to 3.59c
Philadelphia	3.00c to 3.25c
Pittsburgh	3.25c
San Francisco	3.60c
Seattle (large shapes)	3.60c
St. Louis	3.45c
St. Paul	3.55c

PLATES

Boston	3.59c to 3.615c
Buffalo	3.65c
Chicago	3.30c
Cincinnati	3.50c to 3.60c
Cleveland	3.46c
Detroit	3.45c
Detroit, 3/16-inch	3.45c
Los Angeles	4.00c
New York	3.54c to 3.59c
Philadelphia	3.00c to 3.25c
Philadelphia, 3/16-inch	3.22c to 3.47c
Pittsburgh	3.25c
San Francisco	3.75c
Seattle	3.50c
St. Louis	3.45c
St. Paul	3.55c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	4.34c to 4.515c
Buffalo	4.30c
Chicago	4.00c
Cincinnati	4.10c
Cleveland	3.65c to 4.06c
Detroit	4.15c
Los Angeles	5.00c
New York	4.14c
Philadelphia	3.90c
San Francisco	5.00c
Seattle	4.75c
St. Louis	4.10c
St. Paul	4.25c

NO. 28 BLACK SHEETS

Boston	4.85c to 5.00c
Buffalo	5.00c
Chicago	4.70c
Cincinnati	4.80c
Cleveland	4.55c to 4.75c
Detroit	4.85c
Los Angeles	6.20c
New York	4.85c
Philadelphia	5.00c
San Francisco	5.80c
Seattle	5.75c
St. Louis	5.00c
St. Paul	4.95c

NO. 28 GALVANIZED SHEETS

Boston	5.85c to 6.00c
Buffalo	6.10c
Chicago	5.60c
Cincinnati	5.95c
Cleveland	5.60c to 5.80c
Detroit	6.00c
Los Angeles	7.00c
New York	5.85c
Philadelphia	6.00c
San Francisco	6.50c
Seattle	6.75c
St. Louis	6.00c
St. Paul	5.75c to 6.00c

BANDS

Boston	4.315c
Buffalo	4.35c
Chicago	3.95c
Cincinnati	4.25c
Cleveland	4.16c
Detroit	4.10c
Los Angeles	4.65c
New York	4.09c
Philadelphia	3.85c to 4.15c
Pittsburgh	3.95c
San Francisco	4.50c
Seattle	4.50c
St. Paul	4.20c

HOOPS

Boston	5.19c to 5.80c
Buffalo	4.65c
Chicago	4.55c
Cleveland	4.16c
Detroit	4.95c
New York	4.59c
Philadelphia, 1 inch and wider 20 gage and heavier	4.20c to 4.27c
Pittsburgh	3.95c
Seattle	5.50c
St. Paul	4.80c

COLD FINISHED STEEL

Boston (rounds)	4.35c
Boston (shapes)	4.85c
Buffalo (rounds)	4.45c
Buffalo (shapes)	4.95c
Chicago (rounds)	4.00c
Chicago (shapes)	4.50c
Cincinnati (rounds)	4.25c
Cincinnati (shapes)	4.75c
Cleveland (rounds)	4.10c
Cleveland (shapes)	4.60c
Detroit (rounds)	4.30c
Detroit (shapes)	4.80c
Los Angeles (rounds)	5.75c
New York (rounds)	4.40c
New York (shapes)	4.90c
Philadelphia (rounds)	4.00c to 4.15c
Philadelphia (shapes)	4.50c to 4.65c
Pittsburgh (rounds)	4.05c
Pittsburgh (sq. hex and flats)	4.55c
San Francisco (rounds)	5.50c
Seattle (rounds)	5.00c
St. Paul (rounds	4.25c

WELDED PIPE

Discounts from warehouse, New York City

Standard Steel Pipe

(Subject to Shading)

	Black	Galvanized
¼-⅜-inch butt	—31	+ 2
½-inch butt	—41	—24
¾-inch butt	—46	—32
1/3-inch butt	—48	—34
3½-inch lap	—44	—30
7-8-inch lap	—41	—11
9-10-inch lap	—35	— 8
11-12-inch lap	—34	— 6

Wrought Iron Pipe

	Black	Galvanized
¼-⅜-inch butt	+44	+78
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1-1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
3-6-inch lap	—11	+ 6
7-12-inch lap	— 3	+16

Bourne-Fuller Service

includes immediate shipment of all Iron and Steel materials from Cleveland and Cincinnati

Warehouses

If you are not receiving our Stock-list we shall be glad to send it to you regularly upon request.

Upson Works

Open Hearth Steel Bars for special uses. Also a complete line of Bolts and Nuts. Prompt Shipments.

THE
BOURNE-FULLER CO.
Iron, Steel
Pig Iron
Coke

CLEVELAND

New York **Chicago**
San Francisco
Cincinnati **Detroit**

Prather, president and general manager is having bids taken by architect J. G. Braecklin, 703 Federal Reserve Life Insurance building, for 1-story, $75,000, brick and stone plant. *Noted April* 17.

ASHLAND, KY.—Ashland Clay & Metal Products Co. is reported as planning machine shop, repair shop and foundry construction at Bellfonte crossing. Units will be of brick and steel, 65x135 feet and 45x300 feet. A monthly capacity of 500 tons of gray iron castings will be reached. Dick Peebles and Leo Meehan are in charge.

LOUISVILLE, KY.—Standard Sanitary Mfg. Co. Seventh and Shipp streets, has awarded contract to L. W. Hancock, Louisville Trust building, for 1-story, 140 x 180-foot foundry, *Noted April* 24.

BALTIMORE—A. K. Robbins Co., 115 Market street, soon will be in the market to equip boiler and engine repair shop. It has acquired a building on Lombard street, Falls avenue and Concord street, where it will manufacture canning machinery. R. A. Sindall, Market place, is president and treasurer.

Baltimore—The Baltimore Copper Smelting & Rolling Co., subsidiary of the American Smelting & Refining Co. is planning construction of a rod and wire mill to have a capacity of 15,000,000 pounds of drawn products monthly.

BOSTON—The Massachusetts Elevator Co. has been incorporated for $100,000 by Mort People and Carolyn B. Fox, Medford, and Albert Olsen.

BOSTON—Y. D. Service Garage, Inc., 341 Newbury street, will construct service and repair shop, involving expenditure of approximately $200,000; Lockwood, Greene & Co., are engineers.

BOSTON—The Mayfair Mfg. Co., 31 Milk street, is in the market for a single purpose cylinder grinder, 8-inch lathe, 21-inch geared head lathe, lever arbor press, three spindle drill, bench grinder, air compressors, etc.

CHELSEA, MASS.—The American Auto Parts Co. has been incorporated for $20,000 by Koel Pipe, William S. Pike and A. E. White.

HYDE PARK, MASS.—M. Schwalb, 3 Dana avenue, plans constructing 1-story, 20x70-foot machine shop. A. Rosenstein, 7 State street, is architect.

JAMAICA PLAIN, MASS.—A 2-story, 80x110-foot and 3-story, 40x168-foot addition will be constructed to schools, including woodworking and metalworking departments here. The city school house department, 103 City Hall annex, Boston, is formulating plans.

LYNN, MASS.—The Savage Refrigerating Machine Co., Inc., has been incorporated for $50,000 capital by Edwin E. Savage, Robert K. Lufkin and Frederick K. Lufkin, the latter two of Gloucester, Mass.

MARLBORO, MASS.—The Marlboro Wire Goods Co. plans constructing 3-story, 70x100-foot plant.

SOUTHBRIDGE, MASS.—The Textile Card Clothing Co. has been incorporated with $50,000 capital and 100 shares no par value stock to make card clothing of steel, by John C. Pirie, Brooklyn, N. Y.; Vera G. Stanton, Forest Hills, Mass. and Lilliam E. A. Nelson, Quincy, Mass.

WOBURN, MASS.—A 2-story, 40x100-foot machine repair shop will be constructed by C. DeRose, Salem street. E. R. B. and A. C. Chapman, 101 Tremont street, Boston, are architects.

WORCESTER, MASS.—The Taplin Automatic Safety Light Co. has been incorporated for $100,000 by Charles Stefanson, Fred Pappas and Alden B. Taplin.

WORCESTER, MASS.—Worcester Lurch Car Co., 300 Main street, is having plans prepared for 1-story, 31x55-foot brick plant addition. Jasper Rustigan, 405 Main street, is architect.

MILAN, MICH.—The American Boiler & Foundry Co., manufacturer of heating boilers, etc., plans addition to plant, 80x200 feet.

MT. MORRIS, MICH.—E. J. Roberson, 502 Genesee Bank building, Flint, Mich., plans 2-story, 100x150-foot brick and concrete casket manufacturing plant.

ST. LOUIS—J. G. Doty Pump Co. has been incorporated for $100,000 by J. G. Doty, 744 Interdrive, E. T. Oftelie and others.

ST. LOUIS—Steelcote Mfg. Co., 700 North Main street, has completed foundations for 4-story plant, 60x100 feet. Helmuth, De Menil building, are architects. G. E. Niedt is president and treasurer. *Noted Feb.* 21.

ATLANTIC CITY, N. J.—The Atlantic City railroad closed bids June 4, on the erection of a substation. Samuel T. Wagner is architect in charge.

ELIZABETH, N. J.—Standard Plumbing Supply Co., 1046 Elizabeth avenue, is revising plans for 3-story, 40x50-foot warehouse.

NEWARK, N. J.—Bids will be closed June 9 by the board of education, Essex county of vocational schools, on the erection of a vocational school at Irvington, N. J.

BINGHAMPTON, N. Y.—Savery Mfg. Co. has been incorporated for $50,000 to build automobiles and accessories, by C. R. Savery, J. S. Haller, and E. F. Latham, with L. S. Clark, as attorney.

BROOKLYN, N. Y.—B. Friedland, 232 Baltic street, has let general contract to E. Vail, 189 Montague street, for 1-story, 70x100-foot garage.

BROOKLYN N. Y.—G. & M. Iron Works has been incorporated for $5000 by A. Garfinkel W. Miller and R. Rosenblatt with H. Greenberg, 99 Nassau street, New York, as attorney.

BUFFALO, N. Y.—Buffalo Sash Weight & Foundry Co. has been incorporated for $100,000 by I. and M. M. and F. Rosen, with I. Setel, as attorney.

MIDDLEBURG, N. Y.—Middleburg Mfg. Co. has been incorporated for $100,000 to manufacture machinery, by P. E. Kennedy, O. Schuman, Jr., and C. H. Zeiser, with F. W. Bliss, as attorney.

NEW YORK—United States Trucking Corp., 237 South street, has let contracts to Frank W. Hagen, 35 East 169th street, for 1-story, 150x200-foot $75,000-garage.

NEW YORK—A $1,000,000 oil storage and distributing plant will be erected by the Standard Oil Co., 26 Broadway, at Middletown, Conn.

NEW YORK—Property has been purchased in Newark, N. J., by the Auto Strop Safety Razor Co., as a site for the erection of a new plant to manufacture safety razors and blades.

NEW YORK—Superior Arms Co. has been incorporated for $10,000 to make firearms by S. Griffin, and B. Pratt, with J. M. Halzworth, 350 Madison avenue, as attorney.

NEW YORK—Broome Street Pipe Works has been incorporated for $25,000 by B. Shapiro, H. and M. Cohen, with C. M. Davis, 2 Rector street, as attorney.

NEW YORK—Hardware Equipment Corp. has been incorporated for $100,000 by W. I. Lee, J. H. O'Connell and J. C. Donoghue, with Lee, Smyth, Aron & Wise, 7 Dey street, as attorneys.

NEW YORK—Gotham Welding Corp. has been incorporated for $20,000 to do repair work, by H. Kirschbaum, H. Sancier and M. Waldman, with Joseph & Zeamans, 1834 Broadway, as attorneys.

NEW YORK—Beyeler High Pressure Engine Co. has been incorporated for $20,000 to manufacture machinery and appliances, by P. Baumer, A. J. Beyeler and A. Wehm, 30 Church street.

NEW YORK—The Re-Vi-Vo has been incorporated with 500 shares $100 par preferred and 100 shares no par value common stock to manufacture electrical machinery by H. J. Cohen, B. Bunderoff and A. M. Bogrowitz, with C. S. Sinsheimer, 51 Chambers street as attorney.

ROCHESTER, N. Y.—Pullman Mfg. Co. has been incorporated for $100,000 to manufacture window balances, by J. L. Willard, H. G. Williams, with R. B. Ingalsbee, as attorney.

ROCHESTER, N. Y.—La May-Smith-Walker have been incorporated for $10,000 to manufacture can openers, by F. B. Lamay, C. A. Smith and W. R. Walker, with Carnahan, Pierce & Block, as attorneys.

CLEVELAND—The Willard Storage Battery Co., has awarded contracts for 4-story, 40x100-foot plant. P. H. Voth, East 131st street and St. Clair avenue, is in charge.

CLEVELAND—The White Sewing Machine Co., 7821 St. Clair avenue, has awarded constructing contracts for 4-story, 100x100-foot plant on Winslow street. W. T. White is president. *Noted May* 22.

CLEVELAND—Nickel Plate Foundry Co., Coit road, has started construction on 80x150-foot foundry for light gray iron castings. The A. A. Lane Construction Co. is general contractor. *Noted Feb.* 28.

COLUMBUS, O.—The No Liquid Door Check Co., 117 West Frankfort street, is in the market for two 24-inch turret lathes, one drill press and one milling machine.

COLUMBUS, O.—The Stitt Ignition Co., 16 East First avenue, has awarded construction contracts for 1-story, 35x160-foot addition to plant. The company manufactures spark plugs.

COLUMBUS, O.—Columbus Bolt Works, through the offices of Lockwood, Greene & Co., Cleveland, is taking bids for plant, 100x240 feet, of reinforced concrete, 3-story. A steel frame building, 50x360 feet will be used for a forge shop, one 50x167 feet for steel storage and another 50 x 117 feet for a hot bolt shop. *Noted May* 22.

GENEVA, O.—Construction has been started on the 50x140-foot, 3-story plant for the Champion Hardware Co., for which Lockwood, Greene & Co., Cleveland and Boston, are engineers. George A. Rutherford Co., Cleveland, is general contractor.

HAMILTON, O.—Ford Motor Co., 14310 Woodward avenue, Highland Park, Mich., has let general contract to F. K. Vaughn Building Co., Dayton & Lowell streets, for 1-story, 20 x 101-foot brick forge shop addition. Albert Kahn, 1000 Marquette building, Detroit, is architect. *Noted May* 8.

KENT, O.—The Cleveland Worm Gear Co., bidder for the Thomart Motor Co. plant is planning to buy 5-acre site owned by the Mason Tire & Rubber Co.

MANSFIELD, O.—The All Metal Casket Co., recently incorporated, will be in the market shortly for metalworking equipment for its new plant. *Noted May* 22.

SOUTH CHARLESTON, O.—Detroit, Toledo & Ironton railroad has purchased 2300 acres of land here, where it is reported Henry Ford

plans constructing main shops and yards of the railroad, and other industrial works.

OKLAHOMA CITY, OKLA.—The Sherman Machine & Iron Works Co., 32 East Main street, plans building 2-story addition to plant.

TULSA, OKLA.—Slater Bros., 60 North Gillette street, plans building plant for manufacture of derricks, oil well supplies, etc.

FRANKLIN, PA.—The foundry and machine shop of the Franklin Valveless Engine Co., recently badly damaged by fire, will be rebuilt, work starting immediately.

HELLERTOWN, PA.—Reports state that the Reading railroad plans constructing car shops on site recently occupied by the Thomas Iron Co.

HOLTWOOD, PA.—A company is being formed with $3,500,000 capitalization to construct a power plant here. The plant is to be in operation early in 1925 and will develop 100,000 kilowatts, with an initial installation of 20,000 kilowatts. The new company will be managed by the same interests as control the Pennsylvania Water & Power Co. Charles E. F. Clarke, president of that company, and J. E. Aldred, chairman of the board, will be instrumental in forming the new company.

PHILADELPHIA—Work will be started shortly by J. S. Ibins Sons, Inc., on a plant and coal trestle at 1337-39 Mt. Vernon. Howard J. Webster is engineer.

PHILADELPHIA—Contract has been awarded by C. F. Holberg, 1011 Chestnut street manufacturer of elevator safety interlocks, for erection of a 2-story, 45 x 67-foot shop at Thirteenth and Hamilton streets.

PHILADELPHIA—Wirt & Knox Mfg. Co., Twenty-third and York streets, has awarded contracts for constructing 2-story, 94x95x147-foot plant. The company manufactures hose reels.

PHILADELPHIA—Contract for the erection of a $50,000 manufacturing building at the south east corner of Rising Sun and Adams road, has been awarded by the Electric Storage Battery Co. to the William Steele & Sons Co., 219 North Broad street.

PHILADELPHIA—Plans have just been filed by the General Electric Co. for the erection of a $1,000,000 plant at Sixty-eighth street and Elmwood avenue, so that immediate action on the building work is to be expected. As noted in a previous issue, a general contract has been awarded to the Turner Construction Co. Proposed structure will be six stories high, reinforced concrete, 80 x 604 feet. *Noted May* 15.

READING, PA.—The Carpenter Steel Co., 43 Exeter street, F. A. Bigelow, president, plans 1-story, brick and steel and concrete plant at River road and Exeter street. Fred A. Muhlenberg, Ganster building, Fifth and Washington streets, is architect.

CHATTANOOGA, TENN.—Work will be started shortly by the Summerville Cotton Mills of Summerville, Ga., on an addition and improvements which will cost $300,000. The improvements include the electrification of the entire plant.

Business in Canada

BELLEVILLE, ONT.—The National Castings, Ltd., is building an addition to its plant here and will install new equipment, including an up-to-date cleaning plant. The company is interested in the purchase of sand blast equipment, etc.

FORD, ONT.—The Dominion Forge & Stamping Co., has let the general contract to Wells & Gary, Ltd., Toronto, Ont., for addition to plant here.

PEMBROKE, ONT.—The Superior Electric Co., is receiving bids for the erection of a plant here to replace one recently damaged by fire. Machinery and tools will be purchased.

TORONTO, ONT.—The Canadian Laundry Machinery Co., has started work on the erection of plant addition to cost $23,000.

TORONTO, ONT.—The Prest-O-Lite of Canada, Ltd., has let general contract to Wells & Gray, Ltd., Confederation life building, for addition to plant here.

TORONTO, ONT.—Instruments, Ltd., is asking for a screw cutting lathe, 11-inch, compound slide, back gear; small motor to drive same; also bench drill to take from 3/8 to 1/2-inch.

LONGUE POINT, QUE.—The Canadian Steel Foundries, Ltd., has awarded general contract to John MacGregor, Ltd., for addition to foundry.

MONTREAL, QUE.—Masterman's Ltd., is making arrangements for the erection of a plant here to cost $75,000.

New Trade Publications

ELECTRIC RECORDING INSTRUMENTS—Installations of recording meters and dynamometers produced by the Esterline-Angus Co., Indianapolis, are shown in a bulletin by that company.

CUPOLA CHARGING MACHINE—Savings through larger melt and lessened damage to cupola lining are described in a specific instance in a recent installation by a circular by the Whiting Corp., Harvey, Ill.

VIBRATORS—Advantages of an unbalanced type of vibrator in which the impact at one end is heavier than at the other are described in a circular by the Hanna Engineering Co., Chicago, presenting the Mumford type. Other details of the vibrator are also described.

ELECTRIC MOTORS—Alternating and direct current motors, motor generator sets and electro-plating generators and motor generator sets manufactured by the Chandeysson Electric Co., St. Louis, are described and specifications outlined in a series of bulletins which present details of construction and operation.

MACHINE TOOLS—Four pages of attractively presented points of excellence in its line of equipment is being mailed by the Cleveland Punch & Shear Works Co., Cleveland. Small tools as well as larger units come in for excellence in material, design and workmanship.

LIQUID LEVEL GAGE—Simple means to measure and record the height and volume of liquids in tanks and reservoirs is provided in the pneumatic type long-distance liquid level gage which is described and illustrated in a bulletin by the Foxboro Co., Inc., Foxboro, Mass.

RIVETLESS FABRICATION—Steel purifier boxes built without a rivet for the Granite City Gas Light & Fuel Co., Granite City, Ill., by the Steere Engineering Co., Detroit, form the text for a bulletin calling attention to the increasing use of electric arc welding in place of rivets for certain purposes.

SHAPERS—Gould & Eberhardt, Newark, N. J., have issued an attractive booklet in pocket size calling attention to recent developments in shapers and attachments to turn out work more efficiently and economically. The argument presented in its pages is that modern machines and methods pay better than the antiquated.

TOOL STEELS—High speed, carbon and alloy tool steels in the various grades produced by the Braeburn Alloy Steel Corp., are described in an attractive booklet being mailed out on request by that company. A complete list of various grades of tool steel is furnished and much general information as to temper, classifications, gages and section weights.

WELDING AND CUTTING EQUIPMENT—Products of Smith's Inventions, Inc., Minneapolis, Minn., as applied to welding and cutting, are set forth in a folder which is intended as a ready reference for those in need of such equipment. Complete outfits and necessary parts are illustrated and described and new uses to which they can be put are suggested.

SPECIAL STEELS—With pride in 150 years of producing special steels in England and America the Jessop Steel Co., Washington, Pa., has issued a handbook presenting the specifications and applications of the various grades of alloy steels and much statistical information of value to the user of steel. A chapter is devoted to the effects of heat treatment and the principles of hardening practice.

WATER SOFTENER—On the principle that actual performance is the best recommendation of a device the Graver Corp., East Chicago, Ind., has prepared a fac simile of a special survey by A. C. Neilsen Co., Chicago, of the Graver hot process water softener used by the Independent Pneumatic Tool Co., Aurora, Ill. The survey gives figures indicating an annual return of more than 100 per cent annually on the investment.

MOTORS—Alternating current induction and direct current motors of 1/6 to 1/3 horsepower are illustrated in a catalog issued by the Ohio Electric & Controller Co., Cleveland, devoted to applications of the small motor to a wide variety of uses. A battery charging motor generator set for automobile and radio service is also shown, with specifications. In its bulletin No. 204 the motors are described in detail of construction, dimensions are given and specifications shown in tabular form.

INDUSTRIAL LUBRICATION—Lubrication charts and data on the proper means of lubrication of various machinery in a booklet by the Waverly Oil Works Co., Pittsburgh, give to anyone interested in proper lubrication an excellent understanding of what may be accomplished by choosing the proper oil or grease for the purpose intended. A chapter on the principles of lubrication offers much information to aid in working out problems that arise in deciding what lubricant will give best service at a representative cost.

IRON AND STEEL SCRAP—A reprint from the *Waste Trade Journal*, New York, April 26, presents the economic value of the scrap iron dealer to the steel industry. Though not a producer he causes its collection and preparation for mill use. The consumption of iron and steel scrap for 1923 is given as 19,000,000 to 21,000,000 tons, 5,000,000 tons of which originated with railroads, 8,000,000 tons was industrial scrap and about 7,000,000 tons was furnished from dealers' yards, the result of collections by wagon men and small country dealers. The necessity for yard scrap and the facilities for its collection and preparation is accented and the value of the dealer as middleman is backed by arguments.

Iron and Steel Scrap Prices

CORRECTED TO TUESDAY NOON GROSS TONS DELIVERED TO CONSUMER

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	13.50 to 14.00
Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Chicago	13.75 to 14.25
Cleveland	14.00 to 14.25
Cincinnati	11.00 to 11.50
Detroit (dealers)	12.50 to 13.00
Eastern Pennsylvania	15.00 to 15.50
New York (dealers)	10.75 to 11.25
Pittsburgh	16.00 to 16.50
St. Louis	12.50 to 13.00
Valleys	15.75 to 16.00
No. 1 railroad steel New York (dealers)	11.00 to 11.50

COMPRESSED SHEETS

Buffalo	13.50 to 14.00
Chicago	10.00 to 10.50
Cleveland	11.75 to 12.00
Detroit (dealers)	10.00 to 10.50
Pittsburgh	14.50 to 15.00
Valley	14.00 to 14.25

BUNDLED SHEETS

Buffalo	8.50 to 9.00
Cincinnati	8.50 to 9.00
Cleveland	11.00 to 11.50
Detroit	9.50 to 10.00
Eastern Pennsylvania	12.00 to 12.50
Pittsburgh	13.50 to 14.00
St. Louis	8.00 to 8.50
Valleys	12.00 to 12.25

SHEET CLIPPINGS, LOOSE

Chicago	7.50 to 8.00
Detroit	7.50 to 8.00

STEEL RAILS, SHORT

Birmingham	13.00 to 14.00
Boston (dealers)	12.00 to 12.50
Chicago	16.50 to 17.00
Cincinnati	15.00 to 15.50
Cleveland (over 6 ft.)	13.00 to 13.50
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	14.00 to 15.00
Boston (consumers)	15.00 to 15.50
Buffalo	15.00 to 15.50
Chicago	15.50 to 16.00
Cincinnati (net tons)	8.50 to 9.00
Cleveland	13.25 to 13.50
Detroit (net ton) dealers	12.00 to 12.50
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	11.00 to 11.50
Pittsburgh	13.00 to 13.50
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo	18.00 to 18.50
Cincinnati	13.00 to 13.50
Eastern Pennsylvania	19.00 to 20.00
Pitts. billet and bloom crops	21.00 to 21.50

SHOVELING STEEL

Chicago	13.50 to 14.00
Pittsburgh	13.00 to 13.50
St. Louis	12.50 to 13.00

KNUCKLES, COUPLERS, SPRINGS

Chicago	17.00 to 17.50
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	19.00 to 19.50
St. Louis	15.75 to 16.25

FROGS, SWITCHES, GUARDS

Chicago	14.00 to 14.50
Eastern Pennsylvania	15.00 to 15.50
St. Louis	13.00 to 13.50

BOILER PLATE, CUT

St. Louis	5.50 to 6.00

ANGLE BARS—STEEL

Chicago	15.75 to 16.25
St. Louis	13.50 to 14.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.50 to 12.00
Boston (dealers)	12.00 to 12.50
Buffalo	12.50 to 13.00
Cleveland, No. 1	11.50 to 12.00
Chicago, No. 1	13.25 to 13.75
Chicago, No. 2	13.75 to 14.25
Cincinnati, No. 1	10.00 to 10.50
Detroit, No. 2	12.50 to 13.00
Eastern Pennsylvania	17.50 to 18.00
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	13.00 to 13.50
Pittsburgh, No. 2	16.00 to 16.50
St. Louis No. 1	10.50 to 11.00
St. Louis, No. 2	11.50 to 12.00

WROUGHT PIPE

Boston (dealers)	9.00 to 9.50
Buffalo	11.00 to 12.00
Eastern Pennsylvania	15.00 to 16.00
New York (dealers)	10.00 to 11.50

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	16.00 to 17.00

CITY WROUGHT

New York, long	12.00 to 13.00

BUSHELING

Buffalo	13.50 to 14.00
Chicago, No. 1	11.50 to 12.00
Chicago, No. 2	8.25 to 8.75
Cincinnati, No. 1	9.00 to 9.50
Cleveland, No. 1	11.50 to 12.00
Cleveland, No. 2	9.25 to 9.50
Detroit, No. 1	10.50 to 11.00
Detroit, No. 2 (new)	10.00 to 10.50
Detroit, No. 2 (old)	9.00 to 9.50
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	13.00 to 13.50
St. Louis, No. 1	11.50 to 12.00

MACHINE SHOP TURNINGS

Birmingham	5.00 to 6.00
Boston (dealers)	6.50 to 7.00
Buffalo	10.50 to 11.00
Chicago	7.50 to 8.00
Cincinnati	8.00 to 8.50
Cleveland	12.00 to 12.25
Detroit (dealers)	8.50 to 9.00
Eastern Pennsylvania	12.00 to 12.50
New York (dealers)	8.00 to 8.50
Pittsburgh	13.00 to 13.50
St. Louis	5.50 to 6.00
Valleys	11.75 to 12.00

CAST IRON BORINGS

Birmingham (chemical	15.50 to 16.00
Birmingham (plain)	6.50 to 7.50
Boston (chemical)	8.00 to 9.00
Boston (dealers)	7.00 to 7.50
Buffalo	12.50 to 13.00
Chicago	10.00 to 10.50
Cincinnati	8.50 to 9.00
Cleveland	12.75 to 13.00
Detroit (dealers)	10.00 to 10.50
Eastern Pennsylvania (chem.)	14.00 to 14.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers)	8.50 to 9.00
Pittsburgh	13.50 to 14.00
St. Louis	8.25 to 8.75
Valleys	13.25 to 13.50

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	6.50 to 7.00
Cleveland	12.75 to 13.00
Detroit (dealers)	9.75 to 10.25
Eastern Pennsylvania	11.00 to 11.50
New York (dealers)	8.25 to 8.75

IRON AXLES

Birmingham	20.00 to 20.50
Boston (consumers)	31.00 to 32.00
Buffalo	25.00
Chicago	26.50 to 27.00
Cincinnati	18.00 to 18.50
St. Louis	26.00 to 26.50
New York (dealers)	20.00 to 21.00
Eastern Pennsylvania	20.00 to 22.00

IRON RAILS

Buffalo	19.00 to 20.00
Chicago	17.50 to 18.00
Cincinnati	10.50 to 11.00
St. Louis	10.50 to 11.00

PIPES AND FLUES

Chicago	9.50 to 10.00
Cincinnati	8.00 to 8.50
Cleveland	10.00 to 10.25
St. Louis	6.50 to 7.00

RAILROAD GRATE BARS

Buffalo	15.00 to 15.50
Chicago	15.50 to 16.00
Cleveland	13.25 to 13.50
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	13.00 to 13.50
St. Louis	14.00 to 14.50

FORGE FLASHINGS

Boston (dealers)	8.00 to 8.50
Chicago	9.50 to 10.00
Cleveland (under 10 in.)	11.50 to 12.00
Cleveland (over 10 in.)	8.50 to 9.00
Detroit (dealers)	9.00 to 9.50

FORGE SCRAP

Boston (dealers)	7.50 to 8.00
Chicago	16.50 to 17.00
Eastern Pennsylvania	13.00 to 13.50

ARCH BARS AND TRANSOMS

Chicago	19.00 to 19.50
St. Louis	17.50 to 18.00

ANGLE BARS—IRON

Chicago	18.00 to 18.50
St. Louis	17.00 to 17.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	14.50 to 15.00
Chicago	11.50 to 12.00
Cleveland	12.50 to 13.00
Eastern Pennsylvania	13.50 to 14.00
Pittsburgh	14.50 to 15.00
St. Louis	9.00 to 9.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston (consumers)	19.00 to 20.00
Buffalo	19.00 to 20.00
Chicago	18.50 to 19.00
Cleveland	17.75 to 18.25
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	19.00 to 19.50
St. Louis	16.25 to 16.75

SHAFTING

Boston (consumers)	19.00 to 20.00
Chicago	20.00 to 20.50
Eastern Pennsylvania	19.50 to 20.00
New York (dealers)	16.50 to 17.00
St. Louis	19.00 to 19.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, tram car	16.00 to 17.00
Birmingham, iron	15.00 to 16.00
Boston (consumers)	19.00 to 19.50
Buffalo	17.50 to 18.00
Chicago, iron	16.50 to 17.00
Cincinnati	10.50 to 11.00
Eeastern Pennsylvania	17.50 to 18.00
New York iron (dealers)	14.25 to 14.75
Pittsburgh, iron	16.50 to 17.00
Pittsburgh, steel	19.00 to 19.50
St. Louis, iron	14.00 to 14.50

NO. 1 CAST SCRAP

Birmingham, cupola	18.00 to 18.50
Boston (consumers)	20.50 to 21.00
Buffalo	16.50 to 17.50
Chicago, cupola	18.50 to 19.00
Cincinnati No. 1 machinery cupola (net tons)	15.50 to 16.00
Cleveland, cupola	19.00 to 19.50
Detroit (net tons) (dealers)	15.50 to 16.00
Eastern Pennsylvania, cupola	17.00 to 18.00
New York, cupola (dealers)	12.50 to 13.00
Pittsburgh, cupola	17.50 to 18.00
San Francisco	25.00 to 26.00
St. Louis, railroad	18.00 to 18.50
St. Louis, agricultural	18.00 to 18.50
Valleys	19.50 to 20.00

HEAVY CAST

Boston (consumers)	17.00 to 17.50
Buffalo (breakable)	15.00 to 15.50
Cleveland	12.25 to 12.50
Detroit (automobile) (net ton)	17.00 to 17.50
Eastern Pennsylvania	14.50 to 15.00
New York (dealers)	13.00 to 14.00
Pittsburgh	16.00 to 16.50

MALLEABLE

Boston (railroad)	16.50 to 17.00
Buffalo	19.00 to 19.50
Chicago, railroad	17.50 to 18.00
Chicago, agricultural	16.50 to 17.00
Cincinnati, agricultural	10.50 to 11.00
Cincinnati, railroad	15.00 to 15.50
Cleveland, agricultural	15.75 to 16.00
Cleveland, railroad	17.50 to 18.00
Detroit (dealers)	16.50 to 17.00
Eastern Pennsylvania, railroad	15.50 to 16.50
Pittsburgh, railroad	15.00 to 15.50
St. Louis, agricultural	14.50 to 15.00
St. Louis, railroad	14.75 to 15.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham, tram car	15.25 to 16.00
Boston (dealers)	14.00 to 14.50
Chicago	15.00 to 15.50
Cleveland	15.50 to 16.00
Detroit	12.00 to 12.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	14.00 to 14.50
Pittsburgh district	16.50 to 17.00
St. Louis	14.75 to 15.25

LOCOMOTIVE TIRES

Chicago	17.00 to 17.50
St. Louis	14.00 to 14.50

LOW PHOSPHORUS PUNCHINGS

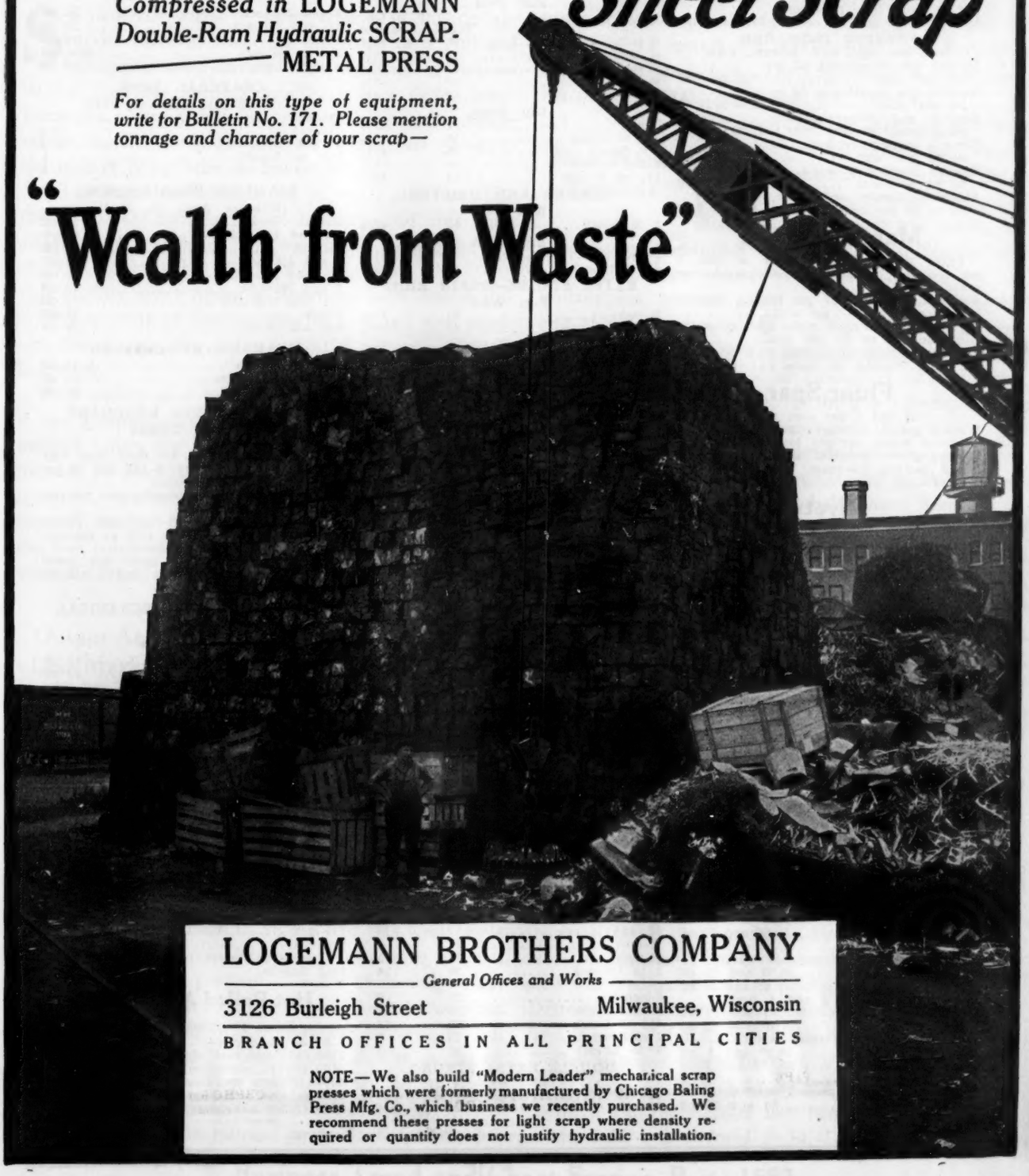
Chicago	15.50 to 16.00
Eastern Pennsylvania	18.00 to 19.00
Pittsburgh	19.50 to 20.00

Almost 2000 Tons - of "LOGEMANN HYDRAULIC-COMPRESSED" Sheet Scrap

Compressed in LOGEMANN *Double-Ram Hydraulic* SCRAP-METAL PRESS

For details on this type of equipment, write for Bulletin No. 171. Please mention tonnage and character of your scrap—

"Wealth from Waste"



LOGEMANN BROTHERS COMPANY

General Offices and Works

3126 Burleigh Street Milwaukee, Wisconsin

BRANCH OFFICES IN ALL PRINCIPAL CITIES

NOTE—We also build "Modern Leader" mechanical scrap presses which were formerly manufactured by Chicago Baling Press Mfg. Co., which business we recently purchased. We recommend these presses for light scrap where density required or quantity does not justify hydraulic installation.

Iron and Steel Prices

Iron Ore

LAKE SUPERIOR ORES
Per Gross Ton Lower Lake Ports

Old range bessemer, 55 per cent iron..$5.65
Mesabi bessemer, 55 per cent iron.... 5.40
Old Range nonbessemer, 51½ per cent iron 4.90
Mesabi nonbessemer, 51½ per cent iron 4.75

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent ..... 9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent ..... 12.50 to 14.50

FOREIGN IRON ORE
Cents per unit, c.i.f. Atlantic ports

Spanish low phosphorus, 52 to 54 per cent ..... 9.00 to 9.50
Algerian low phosphorus, 52 to 54 per cent ..... 10.00 to 10.50
Swedish and Norwegian low phosphorus, 68 per cent.. 11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent ..... 9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent ..... 8.00 to 9.00
Alegerian foundry and basic, 50 to 54 per cent ..... 8.00 to 9.00

Manganese Ore

Prices do not include duty at rate 1 per cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent....nominal
Indian, minimum 47 per cent.....
....nominal 41 to 42 cents c.i.f. tidewater
Caucasian, 53 to 55 per cent.....
.....Ordinary, 43 cents c.i.f. tidewater
.....Washed, 46 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton $19.00 to 23.50
Washed gravel, imported duty paid eastern tidewater, per gross ton ..... 20.60 to 21.10

Rivets

Structural rivets, C. L. Pitts.. 2.60c
Structural rivets L. C. L. Pittsburgh ..... 2.65c to 2.75c
Rivets, 7/16-in. and smaller.....
.....70 and 10 off

Nuts and Bolts

(Up to 1¾ and 1½ inches inclusive)

Hot pressed square or hexagon blank .....$5.00 to 4.75 off list
Hot pressed square or hexagon tapped .....$5.00 to 4.75 off list
Cold punched square or hexagon blank .....$4.50 to 4.25 off list
Cold punched square or hexagon.... .....$4.50 to 4.25 off list
Cold punched semifinished hexagon nuts ½-inch and larger .....80 and 10 off
Cold punched semifinished hexagon nuts 9/16-inch and smaller ....80, 10 and 5 off
Price f.o.b. Pittsburgh, packages of 50.

CARRIAGE BOLTS
(¾ x 6 inches, smaller and shorter)

Rolled thread .....60 and 20 off
Cut thread .....60 and 10 off
Larger and longer .....60 and 10 off

MACHINE BOLTS
(¾ x 4 inches, hot pressed nuts)

Rolled thread .....60, 20 and 10 off
Cut thread .....60 and 20 off
Larger and longer .....60 and 20 off
(All sizes cold punched nuts)
Cut thread .....50,10 and 10 off
Lag screws .....65 and 20 off
Plow bolts Nos. 1, 2 and 3 heads.. .....50 and 10 off
4 to 10 heads.....50-10 + 20 off
Flat and round head stove bolts..... .....80,10 and 5 off
Other stove bolts .....80, 10 and 5 off
Tap bolts .....30 off
Bolt ends with hot pressed nuts..... .....60 and 20 off
Bolt ends with cold punched nuts.... .....50, 10 and 10 off
Blank bolts .....60 and 20 off
Rough stud bolts with nuts (250 pieces or more of a size)..... ....45, 10 and 5 off

Washers

Wrought .....$5.25 to $5.75 off

Steel Pipe

(Effective April 19, 1923)
Pittsburgh basing discounts, jobbers' carloads.

	Black	Galvanized
Butt Weld		
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½
Lap Weld		
2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½
REAMED AND DRIFTED		
Butt Weld		
1 to 3-inch	60	48½
Lap Weld		
2-inch	53	41½
2½ to 6-inch	57	45½
EXTRA STRONG—PLAIN ENDS		
Butt Weld		
⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½
Lap Weld		
2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	48	32½
11 and 12-inch	43	31½
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½
Lap Weld		
2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

Wrought Iron Pipe

(Effective Jan. 23, 1923)
Pittsburgh basing discounts, jobbers' carloads

THREADS AND COUPLINGS		
Butt Weld		
¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13
Lap Weld		
1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
3 to 6-inch	28	13
7 to 12-inch	26	11
PLUGGED AND REAMED		
Two points less than above		
EXTRA STRONG, PLAIN ENDS		
Butt Weld		
¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14
Lap Weld		
2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2
DOUBLE EXTRA STRONG		
Butt Weld		
½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39
Lap Weld		
2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

L. C. L. discounts. C. L. 4 points larger

STEEL (Lap Welded)
(Effective April 19, 1923)

2 and 2¼-inch ..... 23 off
2½ and 2¾-inch ..... 33 off
3-inch ..... 36 off
3¼ to 3¾-inch .....38½ off
4 to 13-inch ..... 42 off

CHARCOAL IRON
(Effective April 12, 1923)

1½-inch ..... +22
1¾-inch ..... +12
2 and 2¼-inch..... + 2
2½ to 3-inch 3
3¼ to 4½-inch..... 5

SEAMLESS COLD DRAWN
(Effective April 19, 1923)

1-inch ..... 51 off
1¼ and 1½-inch ..... 43 off
1¾-inch ..... 27 off
2 and 2¼-inch ..... 18 off
2½ and 2¾-inch..... 28 off
3 and 3¼-inch ..... 32 off
3½ and 3¾-inch ..... 33 off
4-inch ..... 37 off
4½ and 5-inch..... 29 off

SEAMLESS HOT ROLLED

3 and 3¼-inch ..... 34 off
3½ and 3¾-inch..... 35 off
4-inch ..... 39 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per net ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts

Carbon, 0.10 to 0.20 per cent..... 83 off
Carbon, 0.30 to 0.40 per cent..... 81 off
Carbon 0.40 to 0.50 per cent.....net price
Plus differentials and extras for cutting.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES
(Effective April 19, 1923)

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	15c
2-inch	12-gage	15c
2-inch	11-gage	16c
2-inch	10-gage	17c
2¼-inch	12-gage	17c
2¼-inch	11-gage	18c
2¼-inch	10-gage	20c
3-inch	7-gage	35c
1½-inch	9-gage	15c
5⅜-inch	9-gage	55c
5½-inch	9-gage	57c

Plus usual extras for forming and for long lengths.

Hot Rolled Alloy Steels

Prices per pound, Pittsburgh

S. A. E. Series—

2300 (3½ per cent nickel)... 5.00c
3100 (nickel chromium)..... 4.00c
6100 (chrome vanadium) 4.75c
6100 (chrome vanadium spring) 4.50c
9250 (Silico manganese spring) 4.00c to 4.25c